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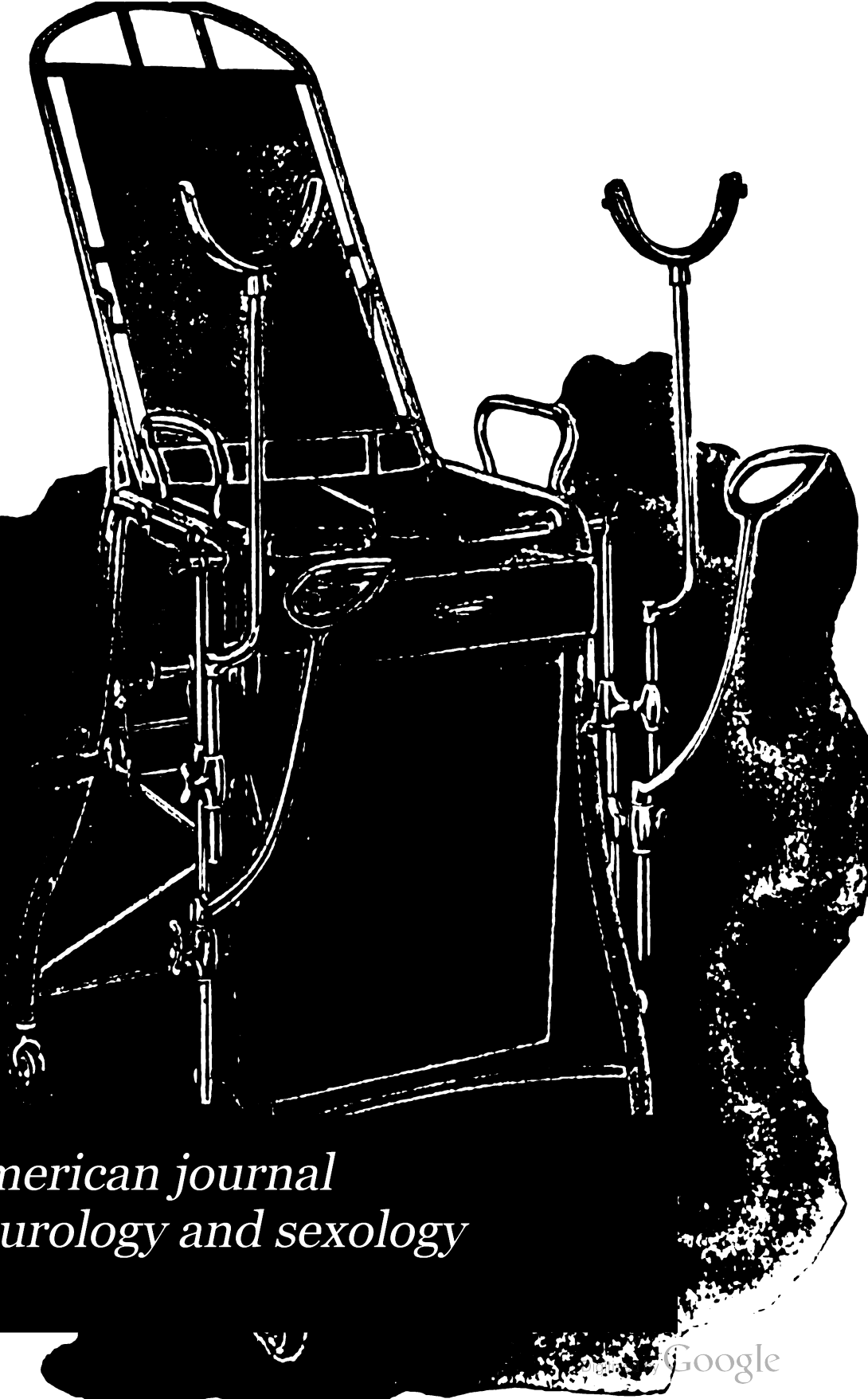
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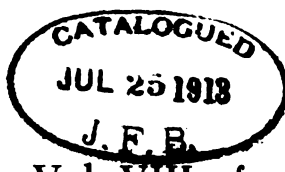
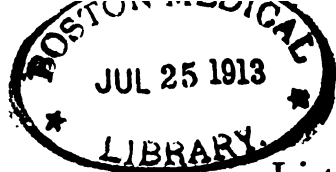
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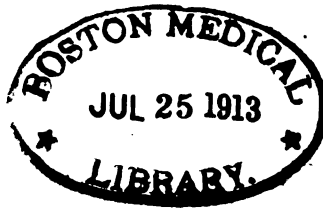
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# THE AMERICAN JOURNAL OF UROLOGY

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## SOME COMMON SOURCES OF ERROR IN THE DIAGNOSIS OF RENAL AND URETERAL CALCULI

By HUGH CABOT, M.D., Boston,  
Genito-Urinary Surgeon to Mass. General Hospital.

**A**S our impressions in regard to the frequency of error in our diagnosis are notably fallacious it has seemed to me wise to base this paper upon a study of fifty carefully analyzed and studied cases. These have been taken from the records of the Massachusetts General Hospital and from my own practice. A short tabulation of the facts obtained may be of interest.

*Age.* The average age at which these patients came to the Hospital was thirty-four (34) years. Most of them had had symptoms of the disease for some time prior to that date, so that it is fair to assume that stone formation is most common at about the age of thirty (30). It is further interesting to note that nearly seventy per cent (70%) of these cases were between twenty (20) and forty (40).

*Sex.* There were thirty-eight (38) males and twelve (12) females.

*Duration of Symptoms.* The average duration of symptoms was five and a half ( $5\frac{1}{2}$ ) years; a speaking comment on the slowness with which the diagnosis is arrived at.

*Renal Colic.* All patients having pain which could in any way be regarded as colic have been put in this classification. Twenty-seven (27) or fifty-four per cent (54%) had renal colic; only slightly over half the cases. Pain other than renal colic was observed in thirty-two (32) cases or sixty-eight per cent (68%).



*Condition of the Urine.* This was studied in relation to the presence of albumen pus or blood. Albumen was present in forty-one (41) or eighty-two per cent (82%), pus in forty-two (42) or eighty-six per cent (86%) and blood in forty (40) or eighty per cent (80%). In only one case was the urine entirely normal at all times. There were four patients whose urine was normal at the time of admission to the Hospital but they had a clear history of recent hematuria. Disturbance of micturition was noted in eighteen (18) or thirty-six per cent (36%).

Tenderness in the region of the kidney in twenty-six (26) or fifty-two per cent (52%).

Tumor was present in nine (9) or eighteen per cent (18%).

*Mortality.* In this series there were five deaths or ten per cent (10%). In forty-two (42) cases in which only one kidney was involved there was one death. In seven (7) cases with stone in both kidneys there were three (3) deaths. One patient died without operation.

Of the symptoms here recorded pain including renal colic and abnormalities of urine are by far the most important and it will be interesting to study them somewhat further.

*Pain.* At the outset it is important to realize that extensive stone formation may occur in the kidney and go on for many years without producing any pain recognizable by the patient. Though this observation is nearly as old as the hills, yet it does not seem to have attracted the attention that it deserves. It is still a fact that the absence of pain is often regarded as important evidence against the presence of renal or ureteral calculi. I have carefully examined these cases in regard to the absence of pain and find that in ten per cent (10%) it is entirely absent at all times. This is, I think, a lower percentage than that recorded by most observers and is certainly not larger than is warranted by the facts. Renal colic, a most characteristic symptom, was present in only about half the cases. Pain without renal colic was present in thirty per cent (30%) of the cases. When pain occurs without renal colic it is likely to be a source of confusion and almost as likely to result in error as inaccuracy of diagnosis. In many of the cases the pain is spoken of by patients as backache, is referred to the lumbar region and attracts attention to the pelvic visera and bony structures rather than to the kidney. In this series of cases it has been mistaken for troubles with the uterus and its appendages, movable kidneys

and sacro-iliac disease. Not infrequently in right-sided calculus formation the pain is referred to the lower quadrant of the abdomen and is frequently confused with the troubles of that hard worked organ the appendix. In the cases of renal colic the pain is frequently atypical and the classical type of pain in the lumbar region shooting down along the course of the uterine to the bladder, scrotum or labia, is often departed from. When as occasionally happens it shows no tendency to radiate but remains localized in the right upper quadrant it may be mistaken for an attack of biliary colic.

Of the special types of pain, frequency of micturition is the most important. In a notable proportion of cases this is the only symptom and so imperative and constant is it that the attention of the physician is attracted to the bladder with such impelling force that the kidney is totally forgotten. It cannot be too often emphasized that frequent and painful micturition may be the sole symptom of stone in the kidney and that the most searching investigation of the bladder will be totally negative. In any case in which the condition of the bladder will not account for all the symptoms a careful examination of the kidney should be made.

*The Urine.* An abnormal condition of the urine is a most constant sign of renal or ureteral calculi. Albumen in small amounts was present in eighty-two per cent (82%) and may be the only symptom. Pus was present in this series in all but seven (7) cases in amount sufficient to be recognizable by the microscope. Blood was present in all but ten (10) cases. The word hematuria has been generally used in referring to the presence of blood. In this case it is however misleading in that it suggests the presence of blood in quantity sufficient to be detected without the microscope. Macroscopic blood was present, or had been present in only fifteen (15) cases and cannot therefore be ranked as an important sign. On the other hand microscopic blood was present in eighty per cent (80%) and is therefore a sign of the first importance.

*Errors in Diagnosis resulting in unnecessary Operations.* In this day when operative surgery has become a relatively safe business we may be pardoned for emphasizing the cases in which errors in diagnosis have put the patient in unnecessary jeopardy of his life. It is I believe the first rule of the practice of medicine that: "Thou shalt do thy patient no harm." The series of cases which I have used as my text were drawn from Massa-

chusetts and the neighboring country. The professional attainments of this section of the country are I believe fairly up to the average and if serious errors of diagnosis are being made with us, I think it safe to assume that they are being made elsewhere. In this series of cases there were thirteen (13) or slightly more than one in four upon whom some other operation was done under mistaken diagnosis. If errors of this magnitude are being made so often we may be pardoned for looking into the causes in some detail.

*Appendicitis.* Confusion of diagnosis with chronic appendicitis has been in my experience the most common error and, if I were to trust my personal statistics, an increasingly common one. In this series there were three cases which will be briefly discussed.

Case I. A boy of sixteen (16) had had several attacks of acute pain in the right lower quadrant of the abdomen, extending over a period of several years. He entered the Hospital during an attack and it was noted that pain was out of proportion with the muscular spasm. At operation done after the attack had quieted down the appendix was found atrophied. After operation the persistent presence of albumen and pus in the urine attracted attention and an X-ray showed stone in the right kidney.

Case II. A woman of twenty-seven (27). Seventeen (17) years ago had an attack of pain in the left side; this continued at long intervals until one and half years before entrance, when on account of pain now on both sides she was operated upon by a median incision through which the appendix was removed. Two months later on account of pain in the region of the right kidney, that kidney was exposed, explored and nothing found. When seen by us X-ray examination showed large stones in both kidneys.

Case III. A man of forty-one (41) for the past five (5) years had had recurrent attacks of pain in the right lower quadrant of the abdomen. These occurred at regular intervals without fever. Two years ago his appendix was removed without relief of symptoms. When first seen by us he was having another attack. There was marked tenderness and some muscular spasm in the right lower quadrant of the abdomen. The urine contained a trace of albumen, microscopic pus and blood. X-ray showed a stone in the right kidney.

## CONFUSION WITH DISEASE OF THE BLADDER

Case I. A boy of sixteen (16). For six or eight years had painful and frequent micturition. Examination of the bladder revealed a stone which was removed by litholapaxy. His improvement after operation was less satisfactory than normal and further examination with X-ray showed a stone in the left kidney.

Case II. A man of forty-one (41). Twenty-five years ago an attack of renal colic. Six attacks since. Since the last attack four years ago has had persistent bladder irritability. Examination of the bladder showed a stone which was removed by suprapubic cystotomy. Further investigation then showed stone in the right kidney.

Case III. A man of thirty-nine (39). Thirteen years ago began to have painful and frequent micturition. Seven years ago on account of the urgency of the symptoms the bladder was opened above the pubis and found to be normal. The symptoms persisted. Five years later X-ray showed large stones in both kidneys.

Case IV. A man of thirty-three (33). Nine years ago was operated upon for stricture of the urethra. Seven years ago had an attack of pain in the left flank. Six years ago began to be troubled with sudden stoppage of his water. Examination of the bladder revealed a stone. It was removed by litholapaxy. The pain continued. One year ago X-ray showed a stone in the left kidney.

## OTHER OPERATIONS UPON THE KIDNEY

Case I. A man of forty-four (44). Four years ago an attack resembling left renal colic. Several attacks since. Finally the left kidney was explored. The capsule was adherent and the kidney abnormally dense over its lower pole. The case was regarded as one of infarct of the kidney. Six months later X-ray revealed a stone of considerable size in the left kidney. Since its removal the patient has been well.

Case II. A woman of thirty-one (31). Four years ago on account of persistent pain in the region of the right kidney it was explored but nothing found. The pain persisted. Recent X-rays showed two stones which were removed.

## OPERATIONS ON THE PELVIC ORGANS

Case I. A woman of thirty-eight (38). Two years ago on account of persistent bachache and pain in the lower abdomen a ventral fixation of the uterus was done. No relief of symptoms. Since then has had constant bachache and occasional pain in the right lower quadrant of the abdomen. Has acquired the morphia habit. X-ray shows a stone in the right kidney.

That all these errors in diagnosis were serious is evident but it is equally clear that they were avoidable. Had the following precautions been observed these operations would not have been done:

First. When investigating the cause of frequent and painful micturition, or dealing with a stone in the bladder not obviously due to obstruction at the neck of the bladder, the absence of stone in the kidney should be demonstrated.

Second. Before operating for attacks of recurrent pain in the right lower quadrant of the abdomen especially when the patient has not been seen during an attack, the condition of the urine should always be known. In the female a catheter specimen must be studied.

Third. Persistent backache in the female may be due to stone in the kidney. A careful investigation of the urine and kidney conditions should be made before operating upon the uterus or its appendages, when not grossly abnormal.

Fourth. Never operate upon cases of kidney pain, except in the presence of an emergency, without a painstaking investigation of the condition of the kidney, by X-ray, cystoscopy, ureter catheter and functional tests.

If the above errors in diagnosis were taken by themselves it would appear that the diagnosis of renal and ureteral calculi was of unusual difficulty. Such however is not the case. In fact the reverse is more nearly true, for there are comparatively few conditions involving deep seated organs in which as great accuracy can be obtained by consistent use of all known methods of diagnosis. The vast majority of all errors are due to the failure to make use of these methods rather than to the failure of the methods themselves and, in as much as there is rarely any emergency about these cases of renal calculus, there is less

excuse for error. Practically the only emergency which can arise is the occurrence of calculus anuria and even in this condition a delay of twenty-four hours is rarely fatal. A far higher degree of accuracy in diagnosis would be obtained if in addition to the ordinary history and routine examination the following methods were always employed.

These are:—A searching examination of the urine, X-ray, cystoscopy, ureteral catheterization and functional test of the kidney secretion.

*Urine.* The examination of the urine must always include not only the routine test for albumen but a competent examination of the sediment obtained by centrifuge. The presence of pus or blood must be sufficiently explained before lesions of the kidney are ruled out. This will give a key to diagnosis in ninety per cent (90%) of the cases.

*X-ray.* Examination of the whole urinary tract by a competent radiographer who is not handicapped as to the number of plates to be taken, will reveal the presence of stone in practically every case.

*Cystoscopy.* The cystoscope should be used to confirm the evidences obtained by examination of the urine and the X-ray. Changes in the bladder may or may not appear, depending upon the presence or absence of infection. Calculi in the ureter can as a rule be located by the obstruction met by the ureter catheter. In some cases the catheter will pass the calculus with little or no obstruction but these cases are exceptions. Dilatation of the ureter and kidney pelvis may be demonstrated by injecting collagol immediately followed by a radiograph. Bierhoff's test is often of value. It consists in the distension of the renal pelvis on the suspected side with fluid injected through the ureteral catheter. If stone is present this will be followed by hematuria which lasts for several hours. Test of kidney function will generally show diminished function on the diseased side, the amount of diminution varying more or less accurately with the amount of kidney damage. Perhaps the most important information given by functional tests is as to the soundness of the other kidney. As operation must generally be resorted to it is of essential importance to know that the remaining kidney is

sound. Accidents to the vessels sometimes occur, serious secondary hemorrhage not infrequently follows nephrotomy and may necessitate removal of the kidney and finally it is essential to know before operation is undertaken whether or not it is safe to remove the kidney should it be found excessively damaged and the calculi if multiple difficult of removal. It cannot be too often repeated that no operation for stone in the kidney should be undertaken without accurate knowledge of the size, number (whether single or multiple) and position of the calculi and of the essential soundness of the remaining kidneys. Where both kidneys are involved functional tests will enable the operator to decide which is the worst kidney and should he desire to operate in two stages which should be attacked first. No operator can do full justice to his patients who is not in a position to avail himself of the above described methods of diagnosis.

#### FURTHER STUDIES OF THE POSTERIOR URETHRA WITH THE CYSTO-URETHROSCOPE

By LEO BUEGER, M.D., New York.

**W**HEN, in a previous paper, I described the normal posterior urethra and some of the pathological lesions as they appear with the cysto-urethroscope, I drew attention to the fact that I encountered some pictures whose significance was still doubtful, and that there were some findings, the nature of which could not be explained until a thorough study of the associated lesions in the prostate had been made. It shall be my purpose to describe here those pathological processes that have since become clear to me, to mention some of the interesting pictures that were encountered in a further series of some 250 examinations with the cysto-urethroscope, reserving a discussion of rare and still doubtful lesions for a future publication. The remarkable clearness with which the minutiae of the mucous membrane of the bladder and urethra can be studied with the cysto-urethroscope is responsible for the fact that many details come to our notice that escape altogether even the most observing examiner when using the cystoscope or any telescope with a lens system adapted for a field situated more than 15 mm. away.

It is not unusual to find that the region of the sphincter presents minute tabs or redundancies when the mucous membrane itself shows no evidences of inflammation and when the history

of the case makes it unlikely that an inflammatory process had preceded. In the juxta-sphincteric region inferiorly, sometimes in the supramontane portion and not infrequently over the summit or declivity of the colliculus do we encounter fine leaf-like redundancies of mucous membrane that we must now regard as being of no significance, representing, as they do, simple anatomical peculiarities of the surface. Although it may at first sight appear difficult to those who employ the cysto-urethroscope but occasionally to determine which of the proliferative lesions in the neighborhood of the sphincter are the expression of pathological processes and which of them are pure anomalies, the experienced observer will soon learn to recognize a true lesion. Thus if we turn to Fig. 1, which shows a number of stalactite-like processes hanging from the roof of the sphincter and lying in mucosa which is evidently normal, we have an example of the result of an inflammatory process which has at least in part subsided. For not only are villous or polypoid excrescences present, but there are larger warty areas over which the mucous membrane is swollen, representing probably intermediate stages in the process of resolution. The finding therefore of larger lesions in the immediate neighborhood makes it more than likely that we were dealing here with the result of a true inflammatory process.

Much easier is the recognition of an acute or a sub-acute inflammatory process in the region of the sphincter. Pronounced tendency to bleeding upon passage of the instrument usually signifies pathological change. Swelling of the mucous membrane, hyperemia, disappearance of markings and vessels, marked tendency to bleed, usually indicate an inflammatory process that is still active. In cystitis colli, in urethro-cystitis and in posterior urethritis, these findings are common. As a rule, the process is neither limited definitely towards the bladder nor towards the urethra. Frequently a lesion around the sphincter is associated with some change in the supramontane portion of the posterior-urethra, and, if we seek its limit towards the bladder, we may find that the pathological change extends for a greater or less distance over the distal portion of the trigone. When there is a distinct *cystitis colli*, the typical proliferative changes that I have alluded to elsewhere, may also extend over the internal sphincter region. Sometimes isolated and minute hypertrophic bodies are sparsely distributed just behind the sphincter margin. At times they may be mistaken for cysts. With the author's



endo-urethral knife, that can be used in connection with the cysto-urethroscope, it is not difficult to rupture cysts which readily collapse, and, on the other hand, to detect that the hypertrophies are simply penetrated by the knife and caused to bleed.

A most interesting lesion that appears to have a predilection for the roof and lateral aspect of the internal sphincter is a chronic proliferative one which I have already referred to in a previous publication under the caption *Urethritis Proliferans*. It exists in two forms either as pale irregularly rounded, bulbous, polypoid or finger-like projections hanging down or projecting from the sphincter, or as velvety red masses without vascular markings (Fig. 2). Inasmuch as the two types may be associated, it appears to me that the former pale form, in which the vessels can be distinctly made out, probably represents areas in which a regression of the inflammatory process had taken place, whereas the latter are the site of a sub-mucous inflammatory process which (if we were to draw an analogy from the pathology of the mucous membrane of the bladder) is most apt to contain proliferating capillaries and round and plasma cell infiltration. Were it not for the fact that these changes, insignificant as they may appear, are often attended with distinct symptoms, such as slight difficulty in urination, pain at the end of the penis and increased frequency of micturition, and were it not for the fact that at times complete destruction of the proliferative areas by the fulguration method is followed by distinct improvement as far as subjective signs are concerned, we would have dismissed the subject with but scant mention. Successful treatment both as to the transformation of such an altered area into one which carries mucous membrane of a smooth and almost normal appearance, and as regards amelioration of the patient's condition, has led me to draw the conclusion that this region should be treated by fulguration whenever the changes are marked and are accompanied by subjective symptoms.\*

Regarding the general conformation of the internal sphincter, as it appears when the fenestra of the instrument points North, South, West or East, we must not be misled by some of the pictures that occasionally occur at the roof into the belief that we are dealing with a pathological lesion. Normally the roof of the sphincter presents a concave notch which is slightly more acute than the margin on either side, but in some cases we may be

\* AMERICAN JOURNAL OF UROLOGY, Jan., Feb. and March, 1911.

surprised either to find a square-like incisure or even a pointed recess, which changes, it is true, upon dilatation of the bladder, but which is nevertheless distinctly different from the usual form.

Although a swollen and inflamed pars supramontana may be but the expression of an extension of a *cystitis colli* or of a urethro-cystitis, the appearance of larger duct-like orifices either in the floor of the posterior part of the pars supramontana or in the roof and sides, is an indication of an old or still existing inflammatory process in the prostate. The normal floor of the supramontane urethra shows characteristic red vascular marking or streaks that tend to converge towards the *fossula prostatica*. The orifices of ducts, however, remain concealed if they exist. Although larger glands and ducts are extremely sparse in the roof of this region, what by virtue of a chronic inflammatory process, or what by the perforation of follicular abscesses, we may find distinct orifices that may exude pus even in this region. In an interesting case of chronic prostatitis and chronic posterior urethritis, the floor of the supramontane region just below the sphincter is illustrated by Fig. 3, where the normal markings have disappeared. The mucous membrane is distorted, showing a large deep crypt-like orifice ending blindly some 6 or 7 mm. below the surface and surrounded by swollen and distorted urethra. This evidently represents the site of a small sub-mucous abscess that probably had perforated at the point now showing the deepest retraction.

In the *fossula prostatica* as well as in the sulci laterales large crypts or dilated ducts orifices are commonly encountered. They may or may not be associated with distinct evidences of a chronic inflammatory process of the surrounding urethra. However, even if the urethra appears to be normal, experience has taught me that their presence usually indicates either an existing or a healed prostatitis. A rather remarkable fact but one which is nevertheless true, is that a prostatic gland from which numerous pus cells with or without gonococci can be expressed, may be associated with an apparently normal urethra save for the presence of large ducts that are practically never seen in cases which have been free from gonorrhœa.

Having learned to recognize the manifold pictures that the normal verumontanum may present, the careful observer will hardly be misled by the cysto-urethroscope. In our last series of examinations, amounting to more than 250 cases, two types of colliculus were most frequently seen. In one of these there

is a horse-shoe shaped utricle orifice with a distinct lip whose concavity looks downward, the ejaculatory ducts being invisible, possibly emptying into a common meatus. In the other type, in which the utricle and ejaculatory ducts are parallel, the former opening is situated nearer the summit of the colliculus, the latter being placed on either side. A striking example of the distortion that may occur in chronic posterior-urethritis associated with prostatitis is exemplified by Fig. 4, in which there was also a papilloma arising from the right margin of the colliculus. The picture belongs to the same case from which the lesion in the supramontane urethra (Fig. 3) was taken. Here the angry red appearance of the mucous membrane, its velvety aspect, its tendency to bleed, were all indications of an active process doubtless kept alive by the prostatic disease. Although the usual treatment for chronic prostatitis was carefully carried out in this case, it was not until the verumontanum, the papilloma, and also the proliferative lesions over the declive were thoroughly cauterized by the fulguration method, that the burning sensation in urination was relieved. In Fig. 5, the condition of part of the fossula prostatica and the right sulcus lateralis is shown. The frenula are enlarged, there is a pseudo-membranous deposit which was difficult to detach, and the cribiform appearance between two of the frenula is due to the presence of the large prostatic ducts that have been previously mentioned.

Although no special study was made of strictures of the urethra, a fair number of cases were encountered in which the lesions occurred in the membranous and bulbous portions, so that a brief description of the findings may not be amiss. In the bulb we often find strictures of large calibre which show themselves in the form of shelf-like projections, usually in the floor, sometimes extending over either wall. In one case of this type a rather prominent stricture was treated by the fulguration method, and some two weeks later an examination was again made showing the stricture illustrated in Fig. 6. Here it may be seen that the ridge is now much reduced in size, having been eaten out, as it were, by the cauterizing process. Just below it, in the darkened area that lies between the bulbous urethra and the margin of the pendulous urethra, we see a small pit that was caused by an accidental application of the spark.

In the membranous urethra we must be rather careful in making a diagnosis of stricture. We not infrequently find that the acclive as it tapers out into the membranous urethra, may divide in a triangular fashion, presenting two folds that separate

TO ILLUSTRATE DR. BUEBGER'S ARTICLE.



FIG. 1



FIG. 2

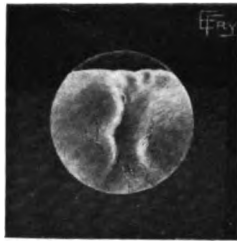


FIG. 3



FIG. 4



FIG. 5

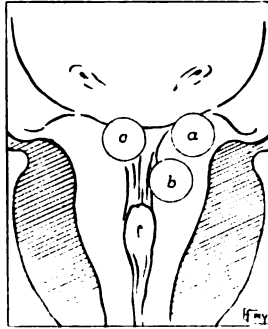


FIG. 6

- Fig. 1. Villous excrescences hanging from the roof of the internal sphincter.  
 Fig. 2. Bulbous hypertrophies on the left side of the margin of the internal sphincter. (Urethritis proliferans.)  
 Fig. 3. Floor of the pars supramontana with deep retracted scar, probably the site of an old abscess.  
 Fig. 4. Distorted and inflamed verumontanum with a papilloma arising from its right side. (Taken from the same case as Fig. 3).  
 Fig. 5. Region where the fossula prostatica and the right sulcus lateralis meet, showing exudate over the swollen ridges (frenula) and the large ducts. A part of the colliculus (declive) occupies the lower right part of the field.  
 Fig. 6. Cauterized stricture in the bulbous urethra; the illuminated margin below is the bulbo-pendulous junction.



TO ILLUSTRATE DR. BUEGER'S ARTICLE.



a



b



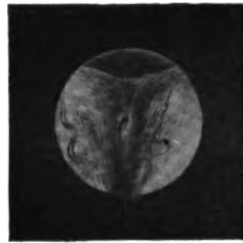
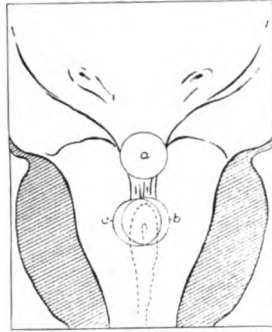
c

FIG. 7

Fig. 7. Findings after removal of small prostatic lobules in case of hypertrophy. (a) Excavation of the present sphincter on the lower left side. (b) Pouches in the pars supramontana, harboring pus. (c) Swollen mucous membrane simulating "œdema bullosum."

THE AMERICAN JOURNAL OF UROLOGY, January, 1912.





a



b



c

FIG. 8

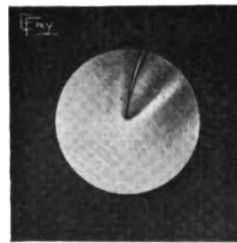


FIG. 9

**Fig. 8.** Lesions after incision of the prostate. (a) Deep incisure at the sphincter and floor of the pars supramontana. (b) Cavity with prostatic ducts in the floor of the montane region, the colliculus being absent. [Considerable pressure of the irrigating fluid used during the examination.] (c) Same region further to the right [less fluid pressure used] showing seminal fluid exuding from a point that marks the new site of the right ejaculatory duct.

**Fig. 9.** Filiform entering a crypt of Morgagni.

THE AMERICAN JOURNAL OF UROLOGY, January, 1912.





and are finally bounded by a transverse ridge limiting the membranous urethra above. A similar transverse ridge may occur as a distal boundary of the membranous urethra. Where, however, the mucous membrane has the appearance of a white ridge with numerous off-shoots separating and diverging in an irregular fashion, we will not find it difficult to diagnosticate a stricture. Portions of such mucous membrane are easily torn upon introduction of the instrument, they may bleed in places, and their avascular appearance presents a contrast to the red mucous membrane in the immediate neighborhood.

If we examine cases that have either been operated for prostatic hypertrophy or for stricture of the urethra, we may discover lesions that will explain the clinical symptoms in many instances. In some of my cases the reasons for post-operative sequelæ were unknown. I shall recount here but two examples out of the large number that have come under my observation. Thus one case who had been operated for a fibrous hypertrophic prostate complained of frequency of micturition and recurring attacks of cystitis. It was interesting to note how accurately the topography of the internal sphincter of the prostatic urethra could be determined. The sphincter was profoundly altered and presented particularly on the left side a deep trough-like excavation shown in Fig. 7a, where the notch undoubtedly permitted the escape of urine into the prostatic urethra. The floor of the supramontane urethra was the site of numerous excavations (one of these being illustrated in Fig. 7b), in which there were collections of pus lying over areas that had not as yet healed. The rest of the mucous membrane was swollen and uneven, having the appearance shown in Fig. 7c not unlike what is often described as "*oedema bullosum*." In this case the retention of small amounts of pus in still unhealed areas of the prostatic urethra, and the infection of retained prostatic tissue undoubtedly account for the cystitis. For a complete cure of the cystitis resulted after the posterior urethra had healed. Although the bladder capacity was practically normal, there still remained an increased frequency of micturition, which can be explained, it appears to me, upon the basis that an imperfect sphincteric control permitted of a premature influx of urine into the prostatic urethra, calling forth thereby a premature desire to urinate. From the examination with the cysto-urethroscope it was not difficult to conclude that very little prostatic tissue had been removed. In truth the hospital record of this case showed that but very small fibromatous and adenomatous nodules had been extirpated.

An interesting study was afforded by another case in which after external urethrotomy, performed by an inexperienced operator, the prostate gland itself had been unwittingly incised. The resulting lesions, following the healing of this gland, are well illustrated in the Fig. 8 a, b, c. Thus in the floor of the sphincter and the supramontane urethra there was a deep concavity or fissure shown in Fig. 8a, at the bottom of which the new-formed orifices of the prostatic ducts were distinctly visible. The greater part of the colliculus was destroyed, leaving in its stead, Fig. 8b, a trough or valley, into which numerous prostatic ducts emptied. In the right sulcus lateralis the opening of the corresponding ejaculatory duct was found under a mass of swollen mucous membrane. Pressure upon the right vesicle while the instrument was *in situ* was followed by an expulsion of seminal fluid that made its appearance in much the same way as thick pus exudes from a ureteral orifice (Fig. 8c). The site of the left ejaculatory ducts was not investigated, and it is interesting to note that, although the verumontanum was in great part destroyed, the ejaculatory ducts had found new openings for themselves and the sexual function as far as the patient could detect apparently suffered no change.

Finally, I wish to call attention to an improvement that has been made in the construction of the telescope of the cysto-urethroscope, namely, the addition of a permanent deflector of very small size that permits of being manipulated just as the deflector of a catheterizing telescope. With this new mechanism it is very easy to introduce a no. 5 (Fr.), or no. 6 (Fr.) catheter into the ureter, to employ a fulguration wire, either no. 5 or 6, or to introduce a filiform bougie into the ejaculatory ducts when using a ureteral catheter as a guide. The probing of the ejaculatory duct is not an easy matter, although the simple introduction of filiform into the orifice of the duct can be accomplished without difficulty. In some instances I have been able to introduce a filiform, bougie 0.5-1 cm., and, in one case, a probe passed 22 mm. without difficulty. Additional experiments are being carried out in order to determine definitely whether any importance can be attached to the method of probing these ducts, and in order to decide definitely as to whether it is possible to diagnosticate occlusion or stricture formation in them. Similarly the introduction of a filiform, or the fine metal point of a fulguration wire into the crypts of the anterior urethra, can be readily accomplished, as Fig. 9 demonstrates.

## TUMORS OF THE BLADDER\*

By CHARLES M. HARPSTER, M.D., Toledo, Ohio.

**I**N the May 28, 1910, number of the *Journal of the American Medical Association*, I found the article of Beer on "Removal of Neoplasms of the Urinary Bladder," and was very favorably impressed with the simplicity and apparent accuracy of the method. With the assistance of Mr. Blum of the Campbell Electric Co. we immediately began a series of experiments with the Oudin and D'Arsonval high frequency currents by "fulguration." Through a water medium we were able to successfully remove skin papillomas and warts, and at the same time have perfect control of the current. I secured from the Wappler Electric Co. a Cooke's fulguration handle and five feet of No. 6 fulguration wire especially made for use through the catheter canals of my Nitze cystoscope. We were able to remove without any difficulty with this equipment, warts from fingers, through a water medium. By adding a small amount of magnesium sulphate to the water the cauterization was more rapid.

The recent article, with report of cases, by E. L. Keyes, Jr., in the *American Journal of Surgery*, July, 1910, "Preliminary Report on the Treatment of Bladder Tumors by the High Frequency Current," gave me new courage to continue along this line, and give it a real therapeutic test. A patient with a large number of venereal warts was treated, with the penis in a water medium, with perfect results. During my recent trip abroad I secured a number of operating cystoscopes and used them in the different clinics in Germany. I also saw intravesical operations by a number of European surgeons. The skill necessary to use a Nitze snare or a Casper snare and cautery is very great. The different manufacturers state that only the most expert can manipulate the same. I have spent many hours of practice on the phantom with operating cystoscopes, and much time was necessary in securing what little skill I may now have. The snaring of tumors being so difficult, Young perfected a rongeur for enucleating bladder growths. This, and in fact all bladder manipulation of this kind are very bloody, and difficult on account of the hemorrhage. The new technic of Keyes and Beer offers the easiest and most satisfactory method to my mind yet devised. I employ the Oudin current derived from a machine made for me by the Campbell Electric Co. A single or double catheter cystoscope can be used. A double catheter cystoscope

\* Read before the Ohio State Medical Society, Cleveland, O., May, 1911.

is better where irrigation of the bladder is desired, as irrigation can be made through one of the catheter channels.

The electrode was a simple No. 6 cable of copper wire thoroughly insulated with rubber, and cut off square at the vesical end. The control is a Cooke's fulguration handle and is constructed so that interruption is instantaneous. The applications were made directly to the growths, the electrode being pushed a short distance into the same, under the guidance of the eye, and then the current was turned on for about thirty seconds at different places on the growths. The bladder was filled with sterile water. The first case I used it on was one of papillomas of the posterior urethra. This case resisted all my efforts with the application of 25% silver nitrate solution and recurrences were numerous as seen with the Goldschmidt posterior urethroscope. Through a posterior (Swinburne type) urethroscope I applied the high frequency current to the growths and their eradication was complete and I think permanent.

The next case was of a single papilloma of the bladder in a male patient, and this was treated with equally good results. The treatment caused no more annoyance than any ordinary instrumentation.

The recurrence of papillomas after removal by other means or the transformation to a carcinoma is familiar to all of us. Multiplication by contact is especially trying in these conditions. Zuckerkandl, of Vienna, stated that there was evidence of implantation of these tumors down the urinary channel from the kidney pelvis, or ureter, into the bladder in some cases of papilloma of the upper urinary tract. The implantation in the suprapubic wound during an operation is especially dangerous.

The applications seem to cause necrosis, which is no doubt in part due to the heat. How much electrolysis and other factors contribute, it is difficult to state. The applications do away absolutely with the hematuria. Gradually the dead tissue separates after a few weeks, and is separated from the healthy, and the mucous membrane grows around and takes the place of the dead tissue. No ulceration occurs from this method of treatment.

I trust this short report may aid in the solution of many trying problems in urological surgery, and that the future will further develop this simple and apparently trustworthy method.

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## PHOSPHATURIA AND OXALURIA \*

FREDERIC E. SONDERN, M.D., New York.

**C**LINICAL phosphaturia covers three distinct conditions, namely, first, bacterial phosphaturia; second, aseptic phosphaturia with actual increased excretion; and third, aseptic phosphaturia with normal or diminished excretion, the precipitation due solely to decreased acidity of the urine. It is generally conceded that all the varieties of phosphaturia are secondary to other conditions, thus the causative elements deserve and receive primary attention, the phosphaturia being a symptom only. This symptom deserves recognition and when found demands an investigation to determine the type which exists in order that the causative factor may be learned.

*Bacterial Phosphaturia:* When bacterial decomposition of urea occurs with the production of an excess of ammonia there is precipitation of ammonio-magnesium phosphate, commonly called triple phosphate deposit. This is the usual "alkaline fermentation" which develops in residual urine and is certainly secondary always to the condition which prevents complete emptying of the bladder. There is no increase in the daily amount of phosphoric acid excreted by these patients. This ammoniacal fermentation may extend from the bladder to the pelvis of the kidney and there give rise to the same type of crystalline deposit. If calculi of any kind exist either in the renal pelvis or bladder, they soon become heavily coated with this crystalline deposit. The same may be said of foreign bodies in the bladder. It is, however, comparatively rare to find stones consisting solely of ammonio-magnesium phosphate, for at least an organic nucleus is usually found. It is noteworthy how many patients leading catheter life with continuous bacterial phosphaturia for years do not develop concretions. It is also a noteworthy fact that colon bacillus infections rarely if ever exist coincident with bacterial phosphaturia, the patients with residual urine usually develop the one or the other type of infection. It is, however, not unusual to observe a change in the type of infection, namely a colon bacillus infection with acid urine changes to a bacterial phosphaturia with alkaline urine or vice versa. While our knowledge concerning colon bacillus infections has been materially improved, comparatively little attention has been given to the bacteriology of urea decomposition in the urinary tract.

\*Read at meeting of Assoc. Internal d'Urolog., London, July, 1911.

*Aseptic Phosphaturia with Actual Increased Excretion of Phosphoric Acid:* Excreted Phosphoric Acid is almost entirely exogenous in origin, the endogenous portion being negligible. There is as yet no substantiated proof that an increased daily excretion of phosphoric acid is due to nerve tissues waste or to a distinct general or local pathological process. Experimental feeding would seem to indicate that persons excreting an excess of phosphoric acid have suffered a correspondingly excessive intake and in turn those excreting a diminished amount have ingested a correspondingly small quantity. If this supposition is correct, all cases of Aseptic Phosphaturia can be placed under one head.

*Aseptic Phosphaturia:* Normal urine holds its neutral and acid phosphates in solution even if the daily excretion of these is considerably above the usual amount. The precipitation of earthy phosphates is generally due to a decrease in the acidity of the urine and probably also to an increase in the bases. These changes are doubtless due to disturbances in metabolism probably, solely in the gastro-intestinal tract, be these functional disorders of digestion or the result of bacterial activity in the intestine. The relative frequency of the condition in neurasthenic subjects or in patients suffering from graver forms of mental disorder, is easily understood when the almost invariable fault in gastro-intestinal function of these persons is realized. This seems a much more plausible explanation than to ascribe not only the phosphaturia, but the mental symptoms as well to nerve tissue waste. It is unfortunate that no distinct type of gastro-intestinal disorder invariably shows phosphaturia, though in general it may be said that gastric hyperacidity and carbohydrate fermentation in the intestine are apt to be associated with phosphaturia while gastric hyperacidity and protein putrefaction in the intestine are apt to be associated with oxaluria. While this rule is by no means without exception, it is followed in a sufficient number of cases to justify the belief that the anomaly under consideration is most probably due to metabolic fault in the gastro-intestinal tract. While concretions consisting of earthy phosphates are not infrequent, it seems rare to have them develop in the cases of phosphaturia observed for a long period and it is also rare to demonstrate a phosphaturia in the persons from whom calcium and magnesium phosphate stones have been removed.

*Oxaluria:* As in phosphaturia, the precipitation of oxalate of lime in the urine does not necessarily indicate increased ex-

cretion, it also being governed by acidity and chemical composition, but unlike phosphaturia, it is frequently due to excessive excretion. Oxalic acid while largely of exogenous origin, is also derived from body metabolism and when excreted in excess may be a suboxidation product. Its origin as the result of functional faults in the gastro-intestinal tract or as the result of bacterial activity in the intestine, has been confirmed and denied by equally competent observers which leaves the question open for the present. While oxalate of lime deposits can be found in urine in perfect health, the formation of concretions is quite common especially in persons who have had catarrhal inflammations in the urinary tract though by no means limited to them. Even in the absence of stone, the sharp crystals not infrequently give rise to local irritation not only in the renal pelvis, but in the urethra as well, particularly after an acute inflammation due possibly to other cause.

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Contributed by the author to THE AMERICAN JOURNAL OF UROLOGY.

### CAUSE OF HYPERTROPHIED PROSTATE

By FREDERICK R. CHARLTON, M.D., Indianapolis, Ind.

**I** BELIEVE that the term "Hypertrophied Prostate" should before long be abandoned as has been the appellation Bright's disease. We now speak of a particular variety of nephritis. So in the future we will define etiologically, histologically and pathologically the variety of prostatic enlargement we may be dealing with. We recognize decided end-differences now. When we know more of etiology we may acknowledge quite as essential differences in the causation.

Casper points out three pathological forms:—the nodular myomatous, the diffuse fibromyomatous and the adenoid hypertrophic. This classification eliminates the almost pure connective tissue (sclerotic) prostate that probably most often follows, as the end result of chronic inflammation. Inflammation is not generally credited with having anything to do as an etiological factor in the development of the condition ordinarily described as "Hypertrophied Prostate."

I wish to trace an analogy between the clinical histories of uterine fibromata and hypertrophied prostate, and to deduce an etiological theory which is a piecing together of hitherto well accepted isolated facts, but which I have not seen stated in the way of a definite and harmonious theory.



Uterine fibromata appear during the active period of uterine function. Practically they never develop before puberty or after the menopause. Stated in another form their growth is made possible by the heightened blood supply of this period. They appear in both pregnant and non-pregnant uteri. So far all women are subject alike to these conditions. What is the direct determining cause? Here there is a wide divergence of opinion. One much discussed idea is that the point of origin is in some embryological inclusion—often a group of muscle cells that are in some unknown way checked in their progress to maturity. They remain dormant unless stimulated in some equally unknown way to take on delayed growth. This inclusion may be a glandular process pinched off from the endometrium. It may be the embryonic connective tissue cells. It is not idle conjecture to give some credit to this explanation since all in all it seems more satisfactory than any other that has been offered.

Given a woman carrying in her uterine wall inclusions:—when the time of increased blood supply is reached they receive their impetus to delayed growth and we have established all the various forms of uterine fibromata. It is fair to assume that many of them remain dormant, but this point is not essential to our argument.

To return to our proposed analogy: It is assumed by competent authorities that man, too, has in his prostate similar inclusions of muscle, gland and connective tissue elements. At first glance, if the parallel is to hold, his hypertrophied prostate should assert itself during the period of early and middle life when the gland is at its highest functioning activity (the time of the greatest normal blood supply). As a matter of clinical fact hypertrophied prostate does not arise at this time. Why not? We do not know. There is either some inhibiting influence working at this time or still some contributing factor lacking.

It is only necessary to go a little farther along this same line. The prostate is surrounded by a venous plexus (plexus of Santorini.) It lies between the true capsule of the prostate and the capsular sheath derived from the pelvic fascia. This plexus receives the blood from the prostatic veins and also the dorsal vein from the penis. The veins of this plexus are peculiarly subject to varicose degeneration which in itself means a retarded blood stream and passive engorgement. Additionally the vessels of this plexus are more prone to the formation of phleboliths

(vein stones) than any other group of veins in the body. Again this condition means obstruction, an increased retarding of the blood stream and still greater passive engorgement.

With varicosities and phleboliths plus pressure within the strong prostatic sheath, you have a venous hyperaemia that is extreme. As a result we have hemorrhages from the prostatic mucous membrane due to engorgement alone. The frequency of the formation of phleboliths may be judged from the fact that almost all of the X-Ray pictures of old prostatics show such shadows. They are almost constant.

Here we have a condition favorable to prostatic hypertrophy—inclusions plus a greater than normal blood supply, made possible—first: by varicosities—second: by phleboliths and third: by increased resistance from the unyielding fascial envelopes. Whether the hypothesis is true or not, it seems to fit into our daily clinical findings. The apparent stumbling block in the reasoning of many has been the part played by the sex function. I believe we may fairly dismiss it except as a factor in blood supply (engorgement). The menopause diminishes blood supply. Castration as practiced a few years ago did just this, perhaps nothing beyond this.

Inclusions, varicosities, phleboliths and accompanying pressure all producing passive hyperaemia, seems to me a rather satisfactory correlation of facts. I find myself constantly turning to this explanation in those cases that we may fairly term hypertrophied prostate in contra-distinction to cases of chronic prostatitis due to long continued and mixed infection.

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Contributed by the author to THE AMERICAN JOURNAL OF UROLOGY.

### FOREIGN BODY (CORK) IN BLADDER

By D. A. SINCLAIR, M.D.

**M**ISS O'C., age 32, domestic, consulted me September 19th, 1909, complaining of frequent and painful urination accompanied by severe tenesmus. She had been troubled for some time by frequent calls to urinate and had resorted to the expedient of introducing a cork to prevent these frequent urinations. Five days prior to visiting me she had pushed the cork too far in and since that time her real suffering began. A cystoscope was introduced into the bladder under local anesthesia, and through it the bladder emptied of some bloody urine and clots, much ropy mucus and flakes of epithelium. The bladder

was irrigated with boric acid solution until the flow returned clear when it was moderately distended. The cork could be plainly seen floating at the vault of the bladder—gentle tapping of the hypogastrium causing it to gracefully bob up and down. On September 20th, under ether anesthesia, I dilated the urethra to No. 38 Fr., irrigated the bladder with boric acid solution until the flow returned clear and moderately distended it with the same solution. An alligator jaw forceps with a long shaft (jaw No. 35 Fr. shaft No. 12 Fr.) was introduced into bladder and then the cystoscope. The cork was seized in its long axis, the cystoscope removed and then the forceps with the cork. The cork was completely covered with urinary salts, this coating being of the thickness of an ordinary visiting card. The diameter of the cork at the greater end was 9-16 inch, and  $\frac{3}{8}$  at the smaller end, being  $\frac{3}{4}$  of an inch in length through the middle. The next day the patient's bladder was irrigated and she retained 11 ounces, passing it a few minutes afterwards. She suffered not even temporary incontinence from the dilatation of her urethra, and left the hospital four days later, with clear urine which contained some shreds. I saw her for the last time on October 8th, when she was feeling perfectly normal. I tried on this occasion to find out her real object in using the cork, but was curtly informed that she had already told me the history of her case as above cited.

# REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman  
and Walter J. Heimann.

## ANNALES DES MALADIES DES ORGANES GÉNITO- URINAIRES

Vol. XXIX, No. 18.

1. Extensive Gangrene of the Bladder from the Injection of a Caustic. By J. Mock.
2. A New Mechanical Treatment of Inflamed Urethral Glands. By A. Cariani.

Vol. XXIX, No. 19.

3. The Modern Cystoscope. By O. Ringleb.
4. Accidents that may occur to the Cystoscope. By Marion.
5. Results of Nephrectomy for Renal Tuberculosis. By A. Boeckel.

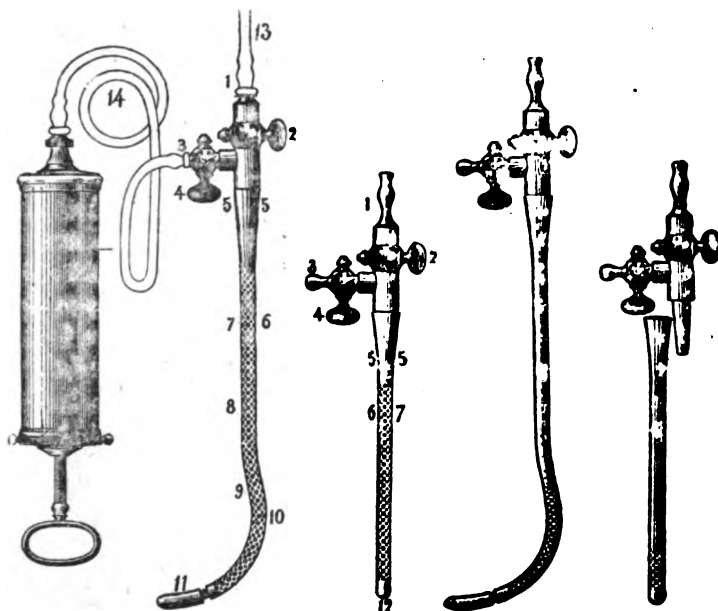


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

### 2. A New Mechanical Treatment of Inflamed Urethral Glands.

Cariani described an apparatus in 1909, by means of which the urethra is subjected to the aspirating effect of a suction syringe acting upon a perforated urethral sound or canula. Canulae of different shapes and sizes are employed for treatment of various parts of the urethra, as illustrated in the figures here appended. A syringe connected through the tube (14) and the cock (4) with the perforated canula (5-11), is made to aspirate, the operator holding the meatus tightly compressed against the enlargement (5) so as to prevent

the entrance or exit of air. After a few aspirations, the vacuum is allowed to act for a few minutes, and the process is repeated. The treatment lasts for about 10 minutes during which 10-30 aspirations suffice for the posterior urethra, 50-60 for the anterior urethra. Now an irrigator containing 1:2000-3000 permanganate of potash solution, previously attached to the end (13), is allowed to pour its contents through the canula, thus irrigating the urethra, the return flow taking its path through the rubber tube (14) which is to be detached and placed in a basin, just before irrigation is begun.

The author's experience both in cases of gonorrheal urethritis of long standing, and in cases of moderate duration leads him to believe that his aspiration method is superior to that of dilatation. The surprising improvement that often occurs after one, two or three séances, and the quantity of secretion that can be collected after treatment, testify to the excellent mechanical effect of aspiration in eliminating the contents of the urethral glands.

Cariani concludes that this mode of treatment is of value because it gives unexpectedly good results even in rebellious cases, because it is easily carried out and is not painful to the patient.

#### 5. Results of Nephrectomy for Renal Tuberculosis.

Boeckel reviews the immediate and remote results of nephrectomy in 57 cases of renal tuberculosis, the operations having been done by André in the clinic at Nancy. Although there were two deaths, one of these was not due to the operation; the operative mortality therefore was 1.75%. The post-operative clinical course was uneventful in most cases, there being but one instance of shock. Three patients had considerable hematuria which was probably due to the additional strain put upon the remaining kidney; this, however, was but transitory. As for complications, there was one case of intestinal fistula, that closed within a month; and one case of severe broncho-pneumonia.

The wound healed within 6 months in 37 of the cases, within 12 months in 10 cases, and at the end of more than a year in 3 cases.

In the chapter on remote results, the author discusses the secondary or late mortality, the cases that were only temporarily relieved, and the cured cases.

Of the nine patients who succumbed, two died several years after the operation, one of pulmonary tuberculosis, the other of uremia. The remaining seven died within the first year after the operation. Most of these had evidences of pulmonary involvement shortly before death.

As for the 46 patients who survived, the condition of 4 was ameliorated only temporarily, since the development of cold abscesses, and the persistence of tubercle bacilli in the urine pointed to systemic infection, to affection of the bladder, the second kidney, or both.

The 41 cases who may be grouped as either very much improved or cured, were all recently examined, and the following points were

investigated:—The general health, the condition of the bladder, the urine, the condition of the remaining kidney, the genital lesions and the lungs.

All patients gained in weight after operation, 4 having become heavier than at any time before the onset of their illness.

In 31 out of the 41 cases, the painful micturition disappeared completely; in 8 there was marked amelioration and in 2 cases only slight improvement of this symptom. The pollakiuria disappeared less rapidly, and in some cases even a year elapsed before a decided change in this regard took place.

The bladder lesions disappeared completely in many cases. In less favorable cases, a diffuse reddening of the bladder remained. The cases operated upon late in the disease, responded least favorably as far as vesical improvement is concerned.

The urine which was usually very cloudy before the nephrectomy, became clear in 24 out of 41 cases after the operation, although in certain cases the change was not noticeable until after the lapse of considerable time. Terminal hematuria persisted in a few cases. In 26 patients the urine became microscopically negative.

The remaining kidney seemed to functionate adequately in 41 cases although slight albuminuria remained in 16 of these. But of 38 inoculation experiments in which guinea pigs were used, 9 were positive. Genital lesions were found in 16 cases, the prostate and vesicles being most frequently involved.

In short there were 2 operative deaths, 9 late deaths, 4 instances of temporary improvement and 41 cases of marked relief and cure.

#### FOLIA UROLOGICA

Vol. VI., No. 5, October, 1911.

1. A Rare Anomaly of the Right Kidney and Ureter. By K. Wedensky.
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1. A Rare Anomaly of the Right Kidney and Ureter.

The following pathological anomaly was an accidental autopsy finding in a patient who died of a brain tumor. The patient, 28 years old, was admitted to the hospital without symptoms referable to the urinary organs, but with a tumor of the orbit which was removed, the patient dying on the day following the operation. The following autopsy findings are of interest. The left kidney and ureter were normal, and the right kidney was of normal size. In the upper pole of the latter there was a sac-like irregular cystic swelling, closely connected with the kidney by connective-tissue. On bisecting the right kidney and the tumor mass, it was found that the tumor had a thick capsule easily separable from the kidney parenchyma. The inner wall showed a number of depressions, suggestive of distended cali-

ces, these all opening into one cavity. From the inner side of this cavity there arose, besides the vessels, a cord with a large lumen and a thinner wall than the ureter. Six centimeters below this cord the normal ureter of the kidney was found to originate. The accessory ureter passed downward to terminate in the prostatic urethra, immediately above and to the right of the colliculus seminalis. The orifices of all three ureters were patent.

Microscopical study of the specimens showed the cord-like structure to be a ureter with thinned out walls. The wall of the cystic tumor contained obliterated Malpighian corpuscles, degenerated glomeruli and urinary tubules.

These findings point to the fact that the cystic mass represents the remains of a second atrophic right kidney. The specimen must be regarded, therefore, as being composed of two right kidneys with two separate sets of vessels and two ureters.

Multiplicity of kidneys is a rare finding in recent literature, and the author considers his to be the seventh authentic case of double kidney on one side. A double ureter on one side is not a very rare condition, occurring in 1 to 4 per cent. of cases, more frequently on the left side. The opening of the ureter in the prostatic urethra is extremely rare. The author has found but two cases in the literature. The combination of double kidney on the right side with two ureters, one opening into the prostatic urethra, is unique, the author having failed to find a similar case in the literature.

### 2. Heteroplastic Uretero-Plastic by Transplantation of Arteries and Veins.

The author has tried 10 ureter plastics, transplanted vessels being used; veins were employed seven times and arteries three times. In three cases the sutures did not hold. In the remaining seven cases the sutures remained *in situ* and no fistulae developed. Of the three unsuccessful sutures, a portion of the internal jugular vein was used in two cases and in the third the long saphenous vein. Of seven positive results the transplanted portions consisted of a piece of the common carotid artery in three of the cases. In three others a piece of the external jugular was used and in the remaining case a segment of the femoral vein. The transplantations were examined at various periods, varying from 3-57 days after operation. The transplanted portion rapidly became necrotic, and, if sepsis does not occur, it was replaced by connective tissue, resulting in stenosis of the lumen of the ureter.

### 3. Solitary Cyst of the Kidney.

Solitary cysts of the kidney are very rare, the author having found but 22 cases in the literature. As regards the origin of these cysts, opinions differ, most observers regarding them as retention cysts.

Others consider them due to congenital defects of development. The author's case may be briefly summarized: A female patient admitted to hospital with vomiting and severe pain in the right side of the abdomen, had received a kick in the right side of the abdomen on the day previous. Pain and vomiting occurred soon after this trauma. There was intense pain in the region of the right kidney and the urine withdrawn by catheterization of the bladder had the color of black coffee. Cystoscopy showed a dilated right ureteral orifice from which blood was being expelled. Diagnosis of rupture of the kidney with hematuria was made. The operation revealed a large hematoma that extended wide in the retro-peritoneal tissues. Nephrectomy was done and the patient made an uneventful recovery. Examination of the specimen showed an enlarged kidney, at the lower pole of which there was an orange-size cyst with a tear in its upper portion. The cyst wall was hard and fibrous, its base being embedded in kidney tissue. Microscopic section taken at the junction of the cyst and the kidney, showed that the cyst wall was composed of two parts, an outer, fibrous layer and an inner granular layer. This inner layer corresponds to adrenal tissue. Therefore the author believes that he was dealing with a cyst of the kidney, of adrenal origin, the blood filling the cyst being probably due to the trauma.

#### Habitual Constipation and the Urinary Organs.

In a considerable number of cases presenting urinary symptoms, but with no demonstrable pathologic lesions of the urinary tract the author believes that obstinate constipation is the etiological factor. Three groups may be considered. In the first of these, distension of the rectum with fecal material, with consequent pressure on the bladder, prostate and urethra, is responsible for the symptoms. Indeed, not only increased frequency of micturition, but even occasional attacks of retention may occur. In some of the author's cases, more than 2 litres of cloudy urine could be drained from the bladder by catheter. After proper evacuation of the bowels by oil enemata and cathartics, all the urinary symptoms disappeared.

There were 30 patients in the author's second group. The symptoms were frequent and, at times, painful urination, also headache, migraine and malaise. The history was that of chronic constipation from which the patients were able to obtain but little relief by the use of cathartics. All urinary symptoms ceased after the following change in treatment was made: namely, substitution of oil enemata for medicinal purgatives and care for the general condition. The symptoms are probably due to congestion of the abdominal and pelvic vessels in this class of cases. In the third group, the patients complain of symptoms similar to those in group two, but, in addition,



the urine shows traces of albumin, at times, hyaline and granular casts and colon bacilli. Some of these cases had been diagnosticated as chronic nephritis. Here too the only possible cause was marked chronic constipation, since all the symptoms cleared up after proper regulation of the bowels. The albumin and casts disappeared from the urine as well the colon bacilli, in most cases. This group is very important from a diagnostic, therapeutic and prognostic point of view, for the cause can be easily overlooked and the patients regarded as nephritics. As to the manner in which chronic constipation influences the kidney, the author thinks that the swelling of the mucous membranes of the urethra and ureters induced by constipation brings about stasis in the ureters and pelvis of the kidneys. The kidneys are also endangered through the influence of colon bacilli, it having been adequately demonstrated that this bacterium readily enters the blood stream in cases coprostasis.—Paul Asch, *Münch. Med. Woch.*, Nov. 7, 1911.

#### The Treatment of Acute and Chronic Gonorrhea in the Male.

Repeated negative examinations for gonococci do not prove that the case is no longer infectious. The final and most certain testimony to this fact is the absence of infection of the wife, especially during childbirth. The author thinks that vaccine treatment in acute and chronic gonorrhea gives the best results. In apparently healed cases, an injection of vaccine in small amounts 1,000,000 to 5,000,000 will, if the gonococci are present, produce a local reaction and is, therefore of great service in diagnosis.

The author gives the history of 10 patients who had been treated for varying lengths of time, and who still had gonococci in their discharge. These patients were cured with rest in bed and vaccine treatment. Twelve acute cases were treated with rest in bed for two or three weeks, mild diet and vaccine therapy. The vaccine was given every four to five days, beginning with 1,000,000 and increasing to 5,000,000. No local treatment was given except hot sitz-baths and massage of the prostate. Three cases developed prostatitis and one epididymitis. These cases lasted six to seven weeks and were then fully cured. The average duration of treatment was thirty-four days.—Meuzer, *Münch. Med. Woch.*, Nov. 14, 1911.

#### The Relation of the Cortical Substance of the Adrenal to the Brain and Sexual Organs.

M. Apert, (*La Presse Médicale*, Oct. 28, 1911) reports: A number of clinical and pathological data point strongly to the close relation that exists between disturbances in the function of the cortical adrenal tissue, and disorders of the brain and sexual organs. It is more than probable that the parenchyma of the adrenal cortex and the germinative cells have a common origin, since both have certain selec-

tive tinctorial reactions to the hematoxylin method of Regaud, and since embryological facts are in keeping with this assumption. Thus hypertrophy and adenomas of the outer substance of the suprarenal gland often attends rudimentary development of the sexual system in hermaphrodites; and disorders of the physiology of the sexual organs (such as precocious puberty, premature menopause, hirsuties) not infrequently accompany adrenal tumors. Practical deductions, based on these observations, lead us to realize that in the employment of adrenal opotherapy, the differences in the physiology and chemistry of the cortex and medulla of the gland must be considered. For it is well known that the medulla, of the adrenal only, contains adrenalin, a fact which clearly shows that the administration of adrenalin where cortical substance is needed, would be of no value.

Whenever we encounter a combination of symptoms in which adiposity, sexual disturbances and hirsuties are prominent features, we must suspect the existence of a tumor of adrenal tissue. However, such tumor, although composed of cortical adrenal elements, need not be situated in the suprarenal gland, the metabolic and physiological alterations pointing simply to histology of the tumor and its situation.

#### Studies in Glycosuria: I. Ether Glycosuria.

In a series of experiments on dogs the authors sought to determine the effect of the inhalation of ether on the appearance of glucose in the urine.

The authors' conclusions may be summarized as follows:

(1) Following the administration of ether to the point of deep anesthesia, there results, in healthy dogs, a well marked glycosuria.

(2) The reducing body in the urine is dextrose.

(3) The cause of the glycosuria is a definite hyperglycemia.

(4) The liver is the organ which furnishes the increase in sugar to the blood, as shown by the absence of the occurrence of a hyperglycemia and glycosuria when the liver is removed from the circulation by an Eck fistula.

(5) Severance of all the splanchnic fibers of the celiac plexus going to the liver did not remove the hyperglycemia and glycosuria elicited by ether.—John H. King, B. Chaffee, D. B. Anderson and L. H. Redelings, *John Hopkins Hosp. Bull.*, November, 1911.

#### Cutaneous Reaction in Syphilis.

H. Noguchi (*Journ. of Exper. Med.*, Dec. 1911), proposes the name *luetin* for an emulsion of pure cultures of *Treponema Pallidum* which is designed to be employed for obtaining, in suitable cases, a specific cutaneous reaction that may become a valuable diagnostic sign in certain stages or forms of syphilitic infection. The repeated inoculation of either living or killed *Pallida* into the testicles of rabbits leads to a condition in which an intradermic injection of luetin is

followed by a well marked inflammatory reaction. A corresponding reaction has been obtained neither in rabbits suffering from active syphilitic orchitis, nor in those in which the condition had been cured by the administration of salvarsan four months previously. Normal rabbits, likewise, do not react to the luetin.

The luetin produces a similar cutaneous reaction in syphilitic and parasymphilitic patients that is most constant and severe in the tertiary and hereditary affections. In Noguchi's series of cases, it was present constantly (100 per cent.) in the manifest tertiary affection, in 94 per cent. of latent tertiary affection, and in 96 per cent. of the hereditary affection. During the primary and secondary stages, the reaction is infrequent, and when present it is of mild degree. An exception has been found in cases in which energetic treatment has been or is being carried out and in which chemical signs of syphilis are absent. Such cases may show a severe reaction. Apparently this is true especially of the cases treated with salvarsan.

In certain cases of old infection in which no treatment has been taken and in which no symptoms have appeared for many years, and in the course of which miscarriages have not occurred, the cutaneous reaction has failed to appear. But, despite the absence of symptoms, mothers who have young syphilitic children have usually given the reaction.

It remains to be determined in how far the cutaneous reaction with luetin can be used to supplement the Wassermann reaction in determining the complete and permanent expression of a syphilitic affection.

It appears probable that the Wassermann reaction is more constant in the primary and secondary, and the cutaneous reaction in the tertiary and latent forms of syphilis. Moreover, it appears that the Wassermann reaction is more directly and immediately affected by anti-syphilitic treatment than is the cutaneous reaction.

A more active preparation of luetin can certainly be produced by improved methods.

#### A Case of Gonorrheal Aortitis.

H. Köster, (*Hygiea*, Vol. LXXII Göteborgs Läkaresällskaps Förhandlingar, p. 27) cites a case of acute gonorrhea in a young man 17 years of age, who, after a stormy period of complications in which there was an infection of the ankle, and an acute endocarditis, finally developed nephritis, pericarditis and thrombosis of the veins of both arms. At the autopsy an aortic aneurysm was discovered, the aorta was inflamed, clots containing gonococci being adherent to the wall of that vessel.

#### The Exploratory Exposure of Both Kidneys in Tuberculosis.

In renal tuberculosis, it is not infrequently difficult to decide

which kidney is affected. Because of profound vesical changes, it may be impossible to make a satisfactory cystoscopic examination. Although such cases are usually serious, there is always a possibility that only one kidney is involved and therefore an attempt to save the patient should be made. Rovsing, in 1894, proposed exploration of the kidney through the lumbar route for these cases. If there is any indication of the involvement of one kidney, the opposite or presumably healthy organ should be attacked first, for if the diseased kidney is first exposed, the wound must be temporarily packed and the other kidney must be examined to determine whether its condition permits of the removal of the diseased one. There have been various objections to this method, the most important being that inspection and palpation of the organ and the healthy microscopic appearance of the decapsulated kidney is no proof of its sound condition. The same be said of a nephrotomy for diagnosis, for the diseased portion may be missed by the incision. The author considers nephrotomy too serious an undertaking. He thinks exploratory exposure is sufficient and cites cases to justify his view.

In a detailed report of 16 cases in which bilateral exposure of the kidneys was performed, the author found two inoperable (severe bilateral disease) out of sixteen. Of the fourteen cases upon whom nephrectomy was done, five died as a result of the operation. Four cases were cured and five cases improved. These cases would otherwise have been lost, for there was no way of determining which side was affected, or whether the case was at all operable.—R. Paschkis, *Münch Med. Woch.*, Nov. 7, 1911.

**ESSENTIAL RENAL HEMATURIA.**—W. Hale White (*Quarterly Jour. of Med.*), July, 1911. When unilateral hematuria, with or without pain, cannot be explained by any of the well understood causes of renal bleeding, the patient is said to be afflicted with "essential renal hematuria." Senator held the view that essential hemorrhage depends on nervous disturbances being either angioneurotic or neuropathic. Many authorities agree that kidney lesions are absent in these cases, others claim to have found minute varicose veins. A certain number of doubtful cases may be cleared up if we assume the presence of a dilated venous plexus at the apex of each papilla, a condition reported by Fenwick and others. Kretschmer reported a case in which nephritis was held responsible for the hemorrhage, but the author casts a doubt on his assumption because a previous nephrotomy was done, and because the patient had been afflicted with scarlet fever. Of 129 cases collected by Kretschmer which might be regarded as essential renal hematuria, a histological examination was made in 61, and of these 52 showed evidence of

nephritis or analogous changes. Opposed to these findings we must consider the cases in which no kidney lesions have been found. From a careful review of the literature the author leans to the view expressed by Senator that bleeding may take place from the kidney without there being any evidence of disease.

Hale White records brief histories of five cases in which the kidney had been explored at Guy's Hospital for bleeding. In one of these the excised kidney was healthy, but the patient has, since the nephrectomy, passed some blood in the urine. This suggests that in rare cases of essential renal hematuria the blood may come from either kidney. In case No. 2 where there was right sided pain and hematuria for two months and blood in the urine for fourteen months, an exploratory operation revealed no abnormality except some inflammation about the upper pole of the right kidney. Three and one half years after the nephrotomy the patient had seen no blood in the urine, which precludes the likelihood of the presence of varicose veins of the papillae.

A nephrorrhaphy was performed on a third case, a woman who had had pain and hematuria for two years. She was in such excellent health three years after the operation that the author excludes nephritis. Inasmuch as the hemorrhage had not recurred we may conclude that there were no papillary veins.

Two other cases are cited by Hale White, in both of which the kidney was thoroughly explored and found healthy.

This condition occurs more often in men than in women, usually between the age of 20 and 40 years, and most often under 30. It is rarely fatal, and, although the hemorrhage doubtless ceases spontaneously in some instances, its cessation so often follows after nephrotomy that it is difficult to resist the conclusion that this operation is often beneficial.

As regards the etiology, there seems to be no foundation for Senator's suggestion that the patients are sufferers from hemophilia. Vicarious menstruation cannot be appealed to, for most of the patients are men. We may regard as analogous the fact that the apparently healthy kidney will sometimes allow albumin to pass into the urine, as in the albuminuria of adolescence and that which follows severe exercise; indeed, blood may appear in the urine after great exertion, and also the apparently healthy kidney will allow of the passage into the urine of large quantities of Bence-Jones protein. Essential renal hematuria appears to have its closest parallel in epistaxis. The most

plausible suggestion seems to be that in some people a poison is elaborated at intervals, leading to alterations of the minute blood vessels of the kidney. As an example we may cite the action of bile in causing hemorrhage, or the extravasations occurring with purpura.

**RUPTURE OF THE KIDNEY WITH THE FORMATION OF A DUODENAL FISTULA.**—Esau (*Medizinische Klinik*), October 1, 1911. Discussing the causes of subcutaneous injury of the kidney, the author mentions the following as most common:— a fall against an edge, a blow from a wagon-shaft, a heavy fall to earth, and being run over. Although many cases of renal injury do not require operative interference, the severe types necessitate intervention at once. In other instances secondary infection may set the surgical indication. Thus the proximity of the colon to the kidney must be regarded as a menace to the integrity of an injured organ. Indeed, the colon bacillus is almost always found as the invader in the secondary infective processes. The bladder, too, furnishes a supply of organisms for attack by the ascending route.

In the case of a boy 13 years of age who was forcibly struck in the right loin by a wagon pole, there were hematuria, severe pain and inability to urinate. After a period of three weeks during which the temperature was high and rapid emaciation took place, the boy was admitted to the hospital. Aspiration in renal region revealed foul smelling pus which was then evacuated through a lumbar incision. Pieces of the torn kidney also escaped from the wound. The kidney was extirpated and the wound drained. After three days bile stained fluid as well as coagulated milk appeared in the dressings. Because of the large size of the hole in the duodenum, and the condition of the tissues, a jejunostomy was done, which did not succeed in improving the condition of the patient who died six days later.

As a lesson from this case the author concludes that whenever a rise in temperature after suspected renal injury occurs, and is not soon followed by a drop to normal, we should suspect that infection has occurred. Immediate intervention is then the procedure of choice.

**CYSTIC TUMOR IN A HORSESHOE KIDNEY.**—Ph. Bockenheimer (*Berliner Klin. Wochenschr.*), Sept. 4, 1911. Bockenheimer describes the removal of a large cystic tumor larger

than an infant's head from a horseshoe kidney in a boy 6 years of age. At the operation the tumor was found extending from the 11th rib down almost into the true pelvis. A solid band of tissue lay transversely across the sacral promontory and could be traced upward along the left side of the vertebral column. The isthmus of the horseshoe kidney was divided first and the cyst then extirpated without difficulty.

Microscopic examination of the wall of the cyst revealed only scant traces of glomeruli, but numerous straight tubules. The author expresses the view that as the result of obstruction, dilatation of the renal tubules took place, leading finally to the formation of a solitary cyst.

THE SURGICAL THERAPY OF NEPHRITIS.—R. Lichtenstern, (*Medizinische Klinik*), July 30, 1911. According to Edebohls the improvement in chronic Bright's disease after decapsulation, is brought about by the formation of numerous collateral vessels. This, he thought, leads to resorption of the inflammatory products and regeneration of the epithelium. In his series of 51 cases of chronic nephritis, 22 were improved and 9 cured by decapsulation.

The above explanation is controverted by Tuffier and Liek who hold that the formation of new vessels does not take place but that a new capsule made up of dense connective tissue is produced. There are two types of nephritis, however, in which decapsulation may be of value. The first of these is characterized by unilateral bleeding, sudden in onset, often occurring in the midst of apparent good health. Such hemorrhage may even be fatal. Before or after the hematuria, the urine may show either an absence or only a trace of albumin, and but a few hyaline casts. No circulatory disturbances or heart lesions are recognizable.

The second type is distinguished by colicky pains simulating the real colic of nephrolithiasis, accompanied by blood in the urine. Such attacks may last hours or only for a few minutes. In the interval, the urine is practically normal, and here too circulatory lesions are not clinically demonstrated.

If we study the literature, we are impressed by the fact that the good post-operative results depend upon overcoming the anuria and upon the reduction of the hemorrhage. Excluding the cases in which a mechanical obstacle accounts for the anuria — namely incarcerated stones, occlusion of the ureter by

kinking or tumor, etc.,—there remain for consideration only the anurias due to a chronic inflammatory process and those due to acute swelling of the kidney, such as are seen in acute severe nephritis, in intoxication or in eclampsia. Here an attempt to relieve the condition by decapsulation or incision is indicated.

Three cases of the author—one of which belonged to the so-called “nephritis paracellulare” of the French authors, or “nephrosis Circumscripta” of Casper, and two of the variety of colic nephritis previously mentioned—were cured by decapsulation.

For the cases of severe unilateral hemorrhage (as in the author's first patient), decapsulation is to be preferred to nephrotomy, because it is less dangerous, because the possibility of secondary hemorrhage after incision is always a menace, and further since the subsequent cicatrization following nephrotomy still further reduces the amount of healthy parenchyma.

Summarizing the author's views we may say that the cases amenable to surgical intervention are the following: Anuria on an inflammatory basis; renal hemorrhage or recurring attacks of colicky pain that are due to a chronic inflammatory process and do not respond to any other therapy. Chronic Bright's disease cannot, however, be influenced by decapsulation.

**PHENOLSULPHONEPHTHALEIN AS A TEST OF RENAL FUNCTION.**—H. Cabot and E. L. Young (*Boston Med. and Surg. Jour.*), Oct. 12, 1911. The authors record their results in 117 cases in which 169 tests were made, and conclude as follows:

1. The claims of Rowntree and Geraghty regarding the value of the test can be substantiated. The method is simpler in technic and more accurate in its results than any of the other tests of renal function.
2. Some doubt as to the accuracy of the tests in chronic nephritis still exists.
3. The test is of great value in cardiorenal disease in indicating the organ principally affected.

**THE ABSENCE OF ADRENALIN IN MALIGNANT RENAL HYPERNEPHROMAS.**—Clyde Brooks (*Jour. Exper. Med.*, November, 1911). The author was unable to demonstrate adrenalin in the blood nor in either of two specimens of malignant hypernephroma, nor in the specimen of metastatic tissue from an adrenal tumor that closely resembled a malignant hypernephroma. The



results agree with those of Greer and Wells. Those rare tumors which arise from medullary adrenal tissue might be expected to contain adrenalin; but, since the ordinary malignant hypernephroma arises from adrenal rests which consist of cortical tissue, and since the cortex of the adrenal contains no adrenalin, we can hardly expect to find adrenal in tumors of cortical origin.

**EXPERIMENTAL ACUTE NEPHRITIS:** (The Elimination of Nitrogen and Chlorides as Compared with That of Phenolsulphonephthalein)—J. H. Austin and A. B. Eisenbrey (*Jour. Exper. Med.*, October, 1911). The authors' investigations were undertaken with a view to studying the elimination of phenolsulphonephthalein in a variety of experimental renal lesions. They wished to determine whether or not the output of this dye parallels that of the chlorides and the total nitrogen. The determination of this point is of importance, not only for the interpretation of the clinical value of the phenolsulphonephthalein test, but also as a means of adding to our knowledge of the normal physiology of the kidney.

Several forms of experimental nephritis were selected for study; namely, those due to uranium or to potassium chromate, representatives of the so-called tubular (or epithelial) nephritis type; and that caused by cantharidin, usually considered to be a nephritis of the vascular type. Dogs were used in all the experiments; they were kept in the conventional metabolism cages and, after a preliminary period of observation for the detection of spontaneous lesions, were placed on a constant diet in such quantities that the daily elimination of nitrogen in the urine approximated one gram per kilo of body weight. On the days when the phenolsulphonephthalein elimination was determined, two sets of estimations were made: one on a composite sample from the urine collected during the two hours required for the phenolsulphonephthalein test, the other from the urine collected during the remaining twenty-four hours.

The important conclusions of the authors may be summed up as follows: Large doses of the poisons used in the experimental study (uranium and cantharidin) impair the power of the kidney to eliminate nitrogen; a transient fall in chloride elimination also takes place.

The decrease in the elimination of phenolsulphonephthalein

which occurs in uranium and cantharidin nephritides bears no constant relation to the changes in the nitrogen or chloride elimination.

A marked decrease in the elimination of the phenolsulphonaphthalein occurs synchronously with the onset of the symptoms of intoxication (vomiting), and therefore the phenolsulphonaphthalein test would seem to be a better indicator of the ability of the kidney to excrete the toxic substance responsible for the symptoms of renal insufficiency than are either the anatomic changes or the elimination of total nitrogen or of chlorides.

**RESIDUAL URINE IN OLD MEN.**—A. G. Miller (*The Practitioner*, September, 1911). The author puts the question:—Why should old men have residual urine, which, increasing and giving rise to retention, with a dilated bladder, ends in catheterism and perhaps prostatectomy? In discussing this query, the author says that it is remarkable that this condition is usually found in men of advanced life and that the patients are somewhat feeble. It is true that the presence of an enlarged prostate may be a factor. That the last alone is not always responsible for the symptoms is borne out by the records of many cases in which the prostate is practically normal in size, and by the consideration that cases with enlarged prostates may have perfect control of the bladder.

Miller suggests that the use of the senile retention may be a deficiency of effort on the part of the patient, due either to laziness, impatience or indifference. Basing his method of treatment on this assumption, the author has been in the habit of advising such patient to make a special effort to produce complete voluntary evacuation. His results were remarkably good, so that the symptoms due to retention completely disappeared in a number of cases.

Miller's conclusions are the following:

1. "Residual urine (in the absence of organic obstruction) is the result of not emptying the bladder thoroughly.
2. This is due to insufficient effort being made.
3. Residual urine can be got rid of by making another or greater effort to pass it.
4. The bladder can be thus trained to thoroughly and systematically empty itself.
5. As a result of this the patient is saved from the neces-

sity of having to rise out of bed during the night, and may also be saved from catheter-life."

**THE TREATMENT OF RENAL TUBERCULOSIS.**—L. Bernard (*La Presse Medicale*, July 8, 1911). Reviewing carefully the results of tuberculin treatment of renal tuberculosis (caseous type), and taking into consideration the incontestable fact that no authentic case of spontaneous cure is on record the author concludes as follows:

1. Unilateral renal tuberculosis of the caseous type should be treated by nephrectomy as soon as the diagnosis is made.

2. The tuberculin therapy has been followed by no results that should lead us to modify this view.

3. Medical treatment should be reserved for those cases in which surgical measures are contraindicated.

**THE ELIMINATION OF PHENOLSULPHONEPHTHALEIN IN EXPERIMENTAL LESIONS OF THE KIDNEY.**—A. B. Eisenbrey (*Jour. Exper. Med.*, November 1, 1911). The report of Rowntree and Geraghty on the successful use of phenolsulphonephthalein as a clinical test of the functional activity of the kidneys suggested its use in the study of some of the problems of experimental nephritis. It was with the idea of establishing a basis for such use, as well as for its application to the study of the renal lesions of man, that the author's investigation was undertaken. The test was applied to normal animals and to animals with a variety of renal lesions, including "spontaneous nephritis," several forms of experimental nephritis, and conditions due to mechanical injury of the kidney.

Eisenbrey concludes as follows: The study of the variety of experimental renal lesions in the dog demonstrates that the phenolsulphonephthalein test is one of the most satisfactory and at the same time most delicate methods of estimating the functional activity of the kidney. The elimination of the test dye is decreased in so-called spontaneous nephritis and in experimental nephritis due to potassium chromate, uranium nitrate, cantharidin, diphtheria toxin, and arsenic, and in those lesions caused by snake venom, hemolytic serum, prolonged renal anemia, and extensive reduction of the kidney substance. Its elimination is not diminished, but is increased, in the presence of the renal lesion caused by nephrotoxic immune serum and for

this discrepancy no explanation is at hand. The test is a reliable method of demonstrating improvements in the functional activity of the kidney, as is shown in one study of spontaneous nephritis. The increased elimination of the dye occurring after small doses of various irritants, which is frequently characteristic of the early stages of severe nephritis, and which is seen also several days after unilateral nephrectomy, would appear to have an important relation to the problem of kidney function; and although probably not of clinical importance, it is worthy of further study as a phase of renal activity.

## GENITO-URINARY PATHOLOGY

THE PRODUCTION OF SYPHILITIC ORCHITIS IN RABBITS.—H. Noguchi (translated by P. Gastou, *La Presse Medicale*, August 9, 1911). The author describes the results of his attempts to cultivate the *treponema pallida* and his success in producing, for the first time, typical luetic lesions in the testes of rabbits by the inoculation of spirochaetae. Scherschewsky in 1909 has obtained pure cultures of the treponema in horse serum, but was of the opinion that such cultivated organisms could not produce lesions in animals. All the other workers in this field had failed in their efforts to bring about luetic changes by the use of cultures. Although Bruckner and Palasesco in 1910, and Sowada in 1911, were successful in causing syphilitic manifestations in rabbits, they employed cultivated material that still contained some of the original infected tissue, and further they were unable to repeat the experiment when using the second generation of treponema.

The author's trials of numerous culture media finally led to the adoption of physiological salt solution containing a bit of fresh sterile tissue (preferably kidney or testicle), placed in tubes, and covered by a layer of sterilized paraffin oil. The tubes which measure 1.5 by 20 centimeters should be filled up to about 15 centimeters. After inoculation, hydrogen gas is passed through them and the cultivation is done anaerobically in an apparatus containing the same gas.

Noguchi was able to obtain six pure cultures out of ten strains of treponema that had been passed through rabbits. In his most recent work he was able to isolate two species of the spirochaeta, both of which caused a typical luetic orchitis after inoculation into rabbits.

PHYSIOLOGICAL AND ORTHOSTATIC ALBUMINURIA—M. Springer (*La Presse Medicale*, July 29, 1911). These two forms of albuminuria occur in individuals who are usually in good health and in whom none of the ordinary clinical signs of renal affection are recognizable. The question of the existence of a true physiological albuminuria has been a subject for investigation at the hands of numerous observers and as prominent amongst these may be mentioned the names of Leube, Senator, Capitan and G. Stewart. These authors studied systematically the appearance of albumin in healthy soldiers. It was

found that amongst them there is a fair percentage of individuals whose urine contains albumin without any attendant symptoms or ill-health, and without any diminution in their ability to endure physical strain. In spite of the apparent health of such soldiers, we cannot deduce any further conclusion than that these individuals *appear* to be healthy. It would be audacious to presume that this so-called physiological albuminuria cannot be the first stage of a renal lesion, be this ever so slight, transitory, or even remittent.

Muscular exercise may either diminish or increase the proportion of albuminuric soldiers in a company. G. Stewart in examining soldiers before and after exercises found that the percentage of cases showing albumin fell from 29 (during rest) to 19 per cent. after exertion. After a long march, however, the percentage of albuminurics rose to 64 per cent. These facts, striking as they are, cannot, however, release us from the suspicion that some hereditary predisposition, or the residuum of some antecedent toxic process, may have interfered with the integrity of the kidney.

Digestion, too, seems to influence the production of albuminuria, for, according to the statistics of G. Stewart, the percentage rose from 15 to 40 per cent. after a repast. Cold baths, emotional states, hard mental work, and over-indulgence in sexual excitement, can all bring about the appearance of albumin in the urine.

Besides this type, there is the so-called "orthostatic albuminuria" that affects a certain category of individuals, especially children, when they take the upright position. The albumin disappears as soon as these patients recline, only to reappear at once when they arise. The erect position, then, seems to be the determining factor in provoking the excretion of albumin. Although certain cases of orthostatic albuminuria may seem perfectly healthy, it is striking that adolescents, whose growth seems retarded, who are anemic with poorly developed muscles and whose general nutrition has suffered through excessive growth, are so often affected. The total disappearance of albuminuria at the termination of the period of development points strongly to the existence of some relation between growth and the renal disturbance. It is true that even after an apparent subsidence of the albuminuria, we are unable to say that the cure is complete. A most plausible theory in explanation

of the condition is the assumption that during the period of growth an excess of certain toxic products of metabolism is elaborated, resulting in a temporary renal lesion, that manifests itself in the excretion of albumin. Later, when the stage of *adolescent over-activity* has passed, veritable lesions of toxic nephritis may be produced.

**TRUE DIVERTICULA OF THE LATERAL WALL OF THE BLADDER.**—S. Sugimura (*Virchow's Archiv.*, Vol. 206, No. 1, p. 10). It is well known that the lateral vesical walls are the favorite sites for the occurrence of true diverticula. As a rule these lie above and to the outer side of the ureteral ostia. Englisch considers the neighborhood of the intramural course of the ureter as a rare but nevertheless characteristic situation of true diverticula.

When the walls of the diverticulum contain a well-developed muscular layer, then we are dealing with the true or congenital type.

As for the method of development of these pockets, one of three processes may be considered as obtaining in any given case.

1. The diverticulum may be completely preformed.
2. There may be a congenital malformation which only leads to pocket formation after many years of increasing vesical pressure through obstruction.
3. The bladder wall may be normal, or there may be simply muscular weakness which, under certain conditions (stone, pressure, etc.), leads to the formation of diverticula.

The author's case leads him to believe that he was dealing with one of the varieties in which a congenital malformation develops into a true diverticulum by virtue of mechanical causes.

**THE INVOLVEMENT OF THE URETERS IN ACUTE CYSTITIS.**—S. Sugimura (*Virchow's Archiv.*, Vol. 206, No. 1, p. 20). By comparative histological studies of the various parts of the urinary tract in 21 post mortem cases, comprising both those with a normal tract and others with acute cystitis, Sugimura endeavored to determine whether or not an inflammation of the bladder ordinarily extends and involves the lower end of the ureter. His conclusions may be summed up as follows:

1. The lower third of the ureter, inclusive of the intramural portion, is almost always involved in cystitis by trans-

portation to the infectious process through the lymphatics, even if the uretral ostia appear macroscopically normal.

2. The mucosa of the ureter, however, may evidence but slight traces of the inflammatory process. No direct traces of extension along the mucosa can be found. This is in accord with the well-known fact that the ureter may appear uninvolved even in undoubted instances of ascending infection of the upper urinary tract.

3. It is noteworthy that many inflammatory foci occur in the region of the lymphatics of the muscularis arventitia of the ureter as well as in the submucosa, in cases that present only a simple acute cystitis. There is a direct relationship between these foci in the intramural portion of the ureter and the adjoining bladder mucosa, indicating that the infection is transported by way of the lymph stream upwards towards the kidney.

4. This ascending process through lymphatics varies as to intensity and duration with the virulence of the pathogenic organism. Possibly the extent of the changes is proportionate to the degree of cystitis.

5. The same observations hold good in the chronic cases of inflammation of the bladder.

6. In addition to the modus described, the bladder lesion may involve the pelvis of the kidney without implicating the ureter by simple ascent of the infecting organism through the ureter as the channel.



## SOCIETY PROCEEDINGS

### THE SECOND INTERNATIONAL UROLOGICAL CONGRESS

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#### THE RESULTS OF PROSTATECTOMY

##### *Report of H. H. Young (Baltimore, Md.)*

Young's report covers a study of 450 cases of perineal prostatectomy, which he considers the operation of choice. The author's experience includes also 85 Bottini operations and 45 suprapubic prostatectomies.

In 484 cases (450 benign, 34 cancer) operated on by the perineal route, 13 were over eighty years of age; 75 over seventy-five years of age, and 171 over seventy years of age, the operation having never been declined on account of advanced age alone.

The wound (including fistula) closed in 18 cases during the first week after the operation and in 56 per cent. of the cases in less than twenty-one days. In only 4 cases is a fistula still present; and it has been found unnecessary to use catheters or sounds to expedite the closure of the fistula.

Regarding the length of stay in the hospital, four per cent. were discharged during the second week, 31 per cent. left inside of 2 weeks, 64 per cent. left inside of four weeks, and only 5.5 per cent. remained over two months. Patients are almost always out of bed by the third day after operation and walking during the first week.

Among 450 cases, it was possible to get information from 331 who are still alive. In all but 26 cases is the elapsed time since the operation, longer than 6 months. Of these 331 patients, the majority have polyuria (particularly nocturnal), but 72 patients do not have to arise at night to urinate; 231 do not have to arise more than once or twice during the night. During the day, all but 12 per cent. retain their urine three hours or more.

As for evidences of return of the obstructive symptoms, every four patients have almost complete retention requiring catheterization. These belonged to the small sclerotic or inflammatory type of prostate, with internal sphincters difficult to dilate, a class of cases that is unsuitable for prostatectomy requiring rather the method of medium-bar excision by means of the urethrosopic incisor.

In 8 cases in which the outflow of urine was not quite normal, the catheter showing a small amount of residual urine, it was possible to give complete relief by the "urethrosopic punch" or "cytosopic rongeur."

With the exception of the 4 cases previously mentioned, the operative results were well right perfect in all of the cases.

The danger of incontinence has been over-estimated. There was

not a single case of complete incontinence—dribbling night and day. An incomplete operation with failure to remove some small lobule at the internal orifice may result in interference with closure of the sphincter and lead to slight incontinence. The preservation of the external sphincter is of great importance, and the perineal operation should always be done through an exposure by blunt dissection behind the transversus perinaei muscles and triangular ligament. The membranous urethra should be entered behind the external sphincter.

There were only two cases of recto-urethral fistula.

Of the 251 cases operated on more than a year or more ago, 133 stated that their sexual powers were about normal before operation; and of these, 78, or 59 per cent, state that there has been a complete return of sexual powers and in 100 (75%) erections have returned. It seems that preservation of the floor of the urethra, ejaculatory ducts and verumontanum has a distinct effect in preserving the sexual powers.

The study reveals that 79 patients have died since leaving the hospital, the time elapsed between operation and date of death being 7 years in 2 cases; 6 years in 4; five years in 5; four years in 5; three years in 5; two years in 14; 18 months in 8; twelve months in 11; six months in 9; and under 6 months in 12 cases.

As for the operative mortality, there were 17 deaths in 450 cases, of benign perineal prostatectomy—3.77 per cent. In only 5 of these, was death strictly unavoidable, for in the other 12 cases, with care and the present methods of examination and preliminary treatment, many of the fatalities would have been avoided. In determining when a patient suffering with prostatic disease can be operated upon safely, perhaps the most important information is as to the functional capacity of the kidneys, which should be estimated by the phenolsulphonaphthalein test. By means of frequent catheterization, the ingestion of large amounts of water, the administration of urotropin, it has been found possible to improve the condition of the bad cases to such an extent, that, during a period of two years and eight months, there were 128 cases subjected to perineal prostatectomy without a single death.

In one out of five cases of prostatic enlargement, carcinoma is present. Among the 6 radical excisions of the prostate, seminal vesicles and neck of the bladder, two patients are still well, one 6 years, another 2 years after operation. The remarkable fact has been demonstrated that the results obtained in these cases of cancer are generally as good as in cases of benign hypertrophy, and that in most cases unless a catheter life is very easy, an enucleating perineal prostatectomy should be done.

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*Report of Regino Gonzales (Mexico).*

Speaking of the remote complications of prostatectomy as illus-

trated by six cases out of a total of seventy-five, the author considers two groups:

1. Cases with incontinence but without retention; and,
2. Cases with phosphatic calculi in the prostatic cavity.

The prostatic cavity is less effectually emptied during micturition than the rest of the urethra, and so forms a pouch, in which precipitation of urinary salts, occurs.

The good result obtained, Gonzales believes to be due to the method of operation employed by him since 1896. This is as follows:

1. Perineal incision; opening of membranous urethra and dilatation of the posterior urethra and neck of the bladder by means of Otis' urethrotome, are the first steps.
2. The mucous membrane of the prostatic urethra is divided by lateral incisions, one on each side, parallel to the long axis of the urethra. The prostate is then enucleated with the index finger.
3. The bladder is drained by means of a double Nélaton catheter (No. 24 Fr.) stitched to the perineal wound.

This method is said to have the following advantages:

1. Good drainage is obtained and lavage of the bladder is simplified.
2. The patient can lie on his side, on his back, or more important, can sit up in bed.
3. Hemorrhage is insignificant, the lobes being removed by the Freyer method, but with the additional advantage that the vesical mucous membrane is not interfered with.
4. The urethra is injured less than in other methods.

In the author's opinion there exist two main factors in the production of "remote complications." These are:—incomplete removal of the tumor; irregular repair of the urethra leading to a cicatrized, tortuous, and less elastic canal.

In the Albarran-Proust operation, the urethra is left intact, but more or less of the growth is left behind. In the Freyer operation extirpation of the growth is complete, but the whole prostatic urethra is removed, leaving a cavity which heals slowly and which, during all this time, is subject to contraction and distortion.

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*Report of O. Zuckerkanhl (Vienna).*

Opinions differ considerably as to what is removed and what is left behind in the operation of prostatectomy. Freyer thought that the gland was removed *in toto*. Walker concurred in this opinion. Freudenberg was the first to point out the fact that a portion of the urethra was removed with the prostate.

A total hypertrophy of the prostate does not exist. The "hypertrophy" is only partial. A sagittal section of the hypertrophied gland shows that the tissue lying anterior to the vasa deferentia and corresponding to what is known as the median lobe is mainly affected. The urethra from the verumontanum upward and extending to the

bladder, is lengthened. That portion of the urethra which lies distal to the colliculus, always remains uninvolved, no matter how pronounced the hypertrophy may be.

Those portions of the prostate which are not concerned in the so-called "hypertrophy," namely the lateral lobes and the anterior and posterior commissures, are preserved and much reduced by pressure. They represent, what is usually regarded as the capsule of the prostate. The extirpated tissue makes up but a part of the prostate and corresponds to the middle lobe in connection with a zone of the gland tissue surrounding the urethra.

The study of hypertrophied prostates which have been removed in toto is very instructive. A broad pelvic portion and a narrow vesical portion can be discerned so that the growth is cone shaped. Superficial examination would lead one to think that the whole prostate with the vesical portion and urethra had been removed. A normal prostate, however, has a broad upper base with a narrow inferior portion. In the extirpated gland the conditions are reversed.

The enucleation of the prostate may be considered as an intra-glandular removal of the diseased portion of the gland, the lateral lobes with the anterior and posterior commissure remaining intact. The ejaculatory ducts with the colliculus are preserved in a typical "prostatectomy." After prostatectomy, rectal examination reveals no change other than a depression in the median line instead of a bulging. Laterally the border of the prostate with the upper and lower poles are distinctly palpable.

Of 97 cases studied, some had complete, others incomplete retention. Of the 94 cases operated upon 52 were attacked by the suprapubic and 42 by the perineal route. Sixteen patients died, a mortality of 17 per cent. In the 42 patients operated by the perineal route, the mortality was 9½ per cent. The suprapubic operation was attended with a mortality of 23 per cent.

Six deaths were due to diseases of the respiratory organs. Five deaths were due to diseases of the kidneys; nephritis, pyelonephritis and atrophy of the kidney. These cases were lost, despite a very careful preliminary examination as to the functional activity of the kidneys. Three deaths were due to hemorrhage. The author considers one of the greatest dangers of operation to be hemorrhage from the bed of the wound. The bleeding may be slight at operation, but may become very serious afterward. Mild hemorrhages coming on in the first and second week after operation also occur. In all cases of profuse bleeding, marked changes in the kidneys were found. Patients with chronic nephritis seemed to show a special predisposition to this form of hemorrhage.

There were permanent fistulae after perineal prostatectomy and only one after the suprapubic operation. Incontinence of urine resulted in five cases after the perineal operation.

The sexual function is not interfered with by the suprapubic operation, whereas potency is preserved in a smaller percentage of cases operated on by the perineal route. A few of the late complications are epididymitis, chronic urethritis and cystitis. Patients who had a predisposition to stone formation were fully cured by the operation. Cicatricial strictures of the urethra following prostatectomy are rare.

The restoration of the prostatic urethra, the neck of the bladder and the trigone after a prostatectomy takes place in so perfect a manner that on cystoscopic and urethroscopic examination no differences from the normal can be detected.\* All disturbances in micturition, including retention, dysuria, dribbling, are permanently removed by prostatectomy. No recurrences have so far been observed after a lapse of eight years. One is justified in regarding prostatectomy as a reliable cure.

From an anatomical point of view, the suprapubic operation, in spite of its high mortality, is to be preferred to the perineal operation.

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#### PHOSPHATURIA AND OXALURIA

*Report of Albert Hogge (Liège, Belgium).*

1. In the greater number of cases it is probable that phosphaturia is connected with a nervous disorder of the secretory organs of the kidneys; at least it may be said that the phenomenon is apparently due to the influence of the nervous system on the renal function; this nervous influence is exercised chiefly in modifying the reaction of the urine.

2. Besides the phosphatic diabetes of Teissier and the juvenile phosphaturia mentioned by German writers, phosphaturia is, and must be considered as, a benign symptom from the point of view of the physician.

Generally speaking, it may be said that phosphaturia is parallel to azoturia, and that it is to be met with in all acute tuberculous conditions. In chronic tuberculous conditions, on the contrary, organic combustion takes place more economically, and there is, generally together with hypo-azoturia, a fall in the elimination of phosphates.

3. From the surgical point of view, phosphaturia aggravates and complicates the inflammatory and calculous diseases of the urinary organs.

4. The best symptomatic treatment of phosphaturia consists in the administration of abundant beverages, urotropin, in the choice of aliments and in hygienic-dietetic rules.

5. Permanent phosphaturia always points to an important disturbance in general nutrition.

\*[This statement of the author is at variance with the findings of those who make careful examinations with the cysto-urethroscope.—Editor.]

Concerning oxaluria, Hogge reports as follows:—Two sources of oxaluria are worthy of consideration:—1st, alimentary oxaluria, and 2d, endogenic oxaluria, produced by the oxidation of substances rich in carbon. The exogenic or alimentary oxaluria depends on the oxalate content of the food. Although older authors sought to bring this form of oxaluria into causal relationship with various functional and nervous disorders, Hogge thinks that we should, to-day, tend to scepticism in regard to the importance of this condition. Indeed most authors are now of the opinion that neither form of oxaluria has any considerable pathological significance. Except for its rôle in the causation of oxalate calculi, the condition is of very slight interest to the internist, although it presents remarkable and interesting problems for the physiological chemist.

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*Report of Paul F. Richter (Berlin.)*

The cause of phosphaturia, in so far as the cloudiness of the freshly passed urine is concerned, is due to a change in the proportion of the soluble and insoluble phosphates of the urine. Increase in the amount of phosphoric acid does not occur. The precipitation of phosphates takes place in the following ways:—

1. Exogenous (or alimentary):—when the diet is too rich in alkaline earths. (Alkalinuria).

2. Gastrogenous:—from over-production of hydrochloric acid in the stomach and due to some irregularity in the resorption of the gastric fluid. This variety may be physiological or pathological.

3. Endogenous:—from some disturbance of the metabolism that relates to lime; or, due to an increase in the urinary calcium salts (Calcarinuria), at the expense of the excretion of these salts by way of the alimentary tract. This method of expelling the lime, however, is not due to any affection of the excretory paths (kidney or rectum); the cause is rather to be looked for in some change in metabolism; indeed we have reason to believe that a disturbance of the so-called “internal secretions” may be at fault. In the light of our present knowledge, it is uncertain as to what glands are responsible. Probably all so-called “acceleratory” glands are concerned.

4. Causal treatment, consisting of a regulation of the lime excretion through the kidneys, is only applicable in the last mentioned variety. In all other forms, especially in the so-called nervous forms, in which the chemical process is not yet understood, and in which the urogenital system cannot be held responsible, treatment must be directed towards influencing the nervous system.

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*Report of Frederic E. Sondern (New York)* appears in full on page 17 of this issue.

*Report of M. J. Teissier (Lyons).*

The author's report comprises three parts:—

I. A chapter of general considerations on the mutation of phosphorus in the organism and the ordinary physiological condition capable of modifying its elimination.

II. A clinical study of the different forms of phosphaturia; apparent phosphaturia or pseudo-phosphaturia—real phosphaturia; phosphaturia pure or associated with albuminuria, glycosuria and more particularly with oxaluria.

III. A few general considerations on the pathogenic mechanism of phosphaturias, with a discussion of the synthesis of the various processes likely to favor abnormal elimination of phosphorus.

I. Phosphoric acid circulates, either combined with mineral ions (soda, potash, lime, magnesia) or with organic radicals. Phosphoric acid, absorbed in a state of mineral phosphates or of organic combinations, after the *hydrolysing* process in the digestive tube, reaches the organs whose functions are synthetic, in a state of mineral phosphates which, by an inverse process of *dehydration* acting between them and certain organic bodies, give rise to fresh combination (lecithin, nucleoproteids, phospho-glyceric acid) destined to go into the different tissues or viscera to replace the waste of cellular life. These combinations, after undergoing more or less complicated hydrolysis, produce phosphates which are eliminated daily, the greater part through the urine, one-third at most through the intestines.

In the urine mineral phosphates are found in the classical and approximate proportions of one-third of phosphate of soda and potash and one-third of phosphate of lime and magnesia; a small quantity of organic phosphorus completes this elimination.

This elimination, which has been estimated by the greater number of observers at 2.50 gr. of  $P_2O_5$  for an adult of medium weight, undoubtedly gives the measure of the intensity of the movements of disassimilation.

If it be true that alimentation influences in a certain measure the amount of the elimination of phosphorus, it can only be observed in *exclusive diet* (meat diet or vegetable diet). Thus an almost exclusively meat diet may temporarily increase the elimination of phosphoric acid up to 7 gr. per day whilst a herbaceous diet only increases the quantity of phosphorus eliminated by the intestines (earthy phosphates).

But there doubtless exists an *elimination of phosphorus independent of alimentation*. Observations of the fasting men Cetti and Breithaupt, who continued to eliminate daily quantities of phosphoric acid varying from 2.30 gr. to 2.40 gr. per day, attest this fact.

Now, this quantity, which it is important to ascertain definitely for clinical purposes, in order to determine with accuracy the degree

of organic disintegration, is *almost constant* in individuals healthy and subjected to mixed feeding, and is 0.030 mgrm. of  $P_2 O_5$  per kilogramme of the weight of the body.

If with an elimination of phosphorus which apparently does not reach the average there exists a *loss of fifty milligrammes* and more of phosphoric acid per kilogramme of the weight of the body, it may be affirmed that true phosphaturia exists.

This statement will have all the more value if, correlatively, it can be established that the proportion of phosphorus to urea is above the normal proportions, which is from 9 to 11 per cent.

One point of the highest importance, and which does not appear to have attracted sufficient attention, is the study of the curve of elimination of phosphorus in the myctaturia. This curve, with its maximum of nocturnal elimination, becomes indispensable when it is a question of suspected or questionable phosphaturia, false phosphaturia with calciuria being generally accompanied by *an inversion of this curve of elimination*.

Henceforth every observation of phosphaturia, to be of any value, must determine:

The rate of the waste of urinary phosphorus in proportion to the weight of the individual (average proportion=0.030 of  $P_2 O_5$  per kilogramme);

The proportion of phosphoric acid to urea or to uric nitrogen;

If possible, the proportion of phosphoric acid to lime;

Finally, the curve of myctaturic elimination of  $P_2 O_5$ .

From the clinical standpoint it is important in the first place to distinguish *apparent phosphaturia from real phosphaturia*, transitory phosphaturia from permanent phosphaturia. Only real and permanent phosphaturias deserve the name of chronic phosphaturia and of phosphatic diabetes.

A. *Apparent phosphaturias*, more generally transitory, unless they constitute the group of *septic phosphaturias* of Klemperer comprise, at the present time, most of the observations published under the name of "phosphaturia."

This is a regrettable misuse of terms; for it is in most cases a question of *false phosphaturias*. These have their beginning in the precipitation of phosphates of alkaline earths, that have *become insoluble* by passing to a tribasic state.

We are led to believe that primary oxaluria is capable of acting in the same manner through secondary hypersecretion of alkaline mucus and an increase of elimination of lime, for which oxalic acid has a special affinity. However that may be, these morbid manifestations have, as a common characteristic, *milkeness of the urine*.

Whether it be a question of pseudo-phosphaturias of Gouraud, of the "alkalinuria" or of the "calciuria" of the German authors, the



formula which can be used to translate such a state of things is very simple: it is the diminution of the proportion of phosphoric acid to lime, more accurately to the alkaline earths, lime and magnesia. Thus lime may pass at a quarter, instead of representing the twelfth part of phosphoric acid eliminated.

It is in these forms of calciuria with relative hyperphosphaturia that may be witnessed those crises of phospho-oxaluria which are so curious, sometimes accompanied by a state of abject depression, the legs giving way, a real *spinal vertigo*, forcing the sufferer to sit down or to seek the help of a passer-by. These crises are almost instantly followed by the emission of milky urine with rapid formation of a thick opalescent deposit, formed of crystals of ammonio-magnesium phosphate, of oxalates and of crystals of azotate of urea. Sometimes this urine contains some traces of albumen.

During the intervals of the crises, urine rich in mucus or chalky carbonates and offering intermittently a certain degree of mesodiurnal milkiness may present a notable effervescence, and may be accompanied at its emission by a persistent froth.

*Pseudo-phosphaturics* who are capable of producing in the kidney pelvis and the bladder, precipitations of chalky salts analogous to those observed *in vitro*, and who consequently possess the conditions which are necessary for, and which one would expect for calculus formation and for the deposit of phosphatic or uro-phosphatic constituents, have particularly attracted attention. *Phosphatic gravel*, therefore, results more particularly from a local process.

Nevertheless, it is impossible to ignore the bonds which connect the pseudo-phosphaturic manifestations with the great constitutional dyscrasias (gout, rheumatism, neuro-arthritis). Indeed the phenomena of gastric hypersecretion, nervous phenomena, oxalaemia, which sometimes provoke these pseudo-phosphaturia and cause urinary alkalescence and an increase of calciuria, are merely the expression of abnormal nutrition.

B. *Real phosphaturias* are transitory or permanent.

(a) Transitory phosphaturias are far from being rare; however, the conditions by which they are dominated are also far from being completely determined. One of their most interesting features is represented by the phosphaturic crisis of pyrexia, particularly pneumonia and typhoid fever.

(b) Chronic phosphaturias alone should retain the name of diabetic phosphaturias. For they alone, when their duration is prolonged, are capable of being accompanied by a true diabetic syndrome—thirst, polyuria, emaciation, nervous troubles and general complications of diabetes (cataract, anthrax, etc.).

Chronic and isolated phosphaturia may be observed in three different conditions: *Phosphatic diabetes* from nervous depression, overwork, brain work or prolonged trials—syndrome which may be re-

lieved by rest, tonics and hydrotherapy. *Phosphatic diabetes*, manifestation of the pretubercular stage, is perhaps the most frequent. *Phosphatic diabetes*, alternating with, or sometimes substituted for diabetes mellitus, and which from this very fact should be considered as latent diabetes mellitus. It presents the same symptoms and requires the same treatment.

(c) *Phosphaturia is most frequently associated* with azoturia, albuminuria, glycosuria, oxaluria. These associated forms, which have attracted more particularly our attention, and the relation between phosphaturia and tuberculous evolution, deserve above all the interest of the clinician.

I. *Relation between permanent phosphaturia and tuberculosis.*—In 1876 Teissier defined the nature of this relation when he voiced the principle that phosphaturia is a manifestation of the *pretuberculous period*, or of the first phase of a tuberculous evolution in the lung.

II. *Relation of phosphaturia to glycosuria and oxaluria.*—It was in considering numerous facts concerning glycosuria alternating with phosphaturia, that the author conceived the possibility of a close connection between the two phenomena. The author believes that chronic phosphaturia, taking the place of diabetes mellitus, especially if it is accompanied by progressive lowering of arterial pressure, has a serious prognosis and may indicate an early development of tuberculosis.

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#### EXTENSIVE RESECTION OF THE BLADDER

*Report of Thorkild Rosing (Copenhagen).*

There are three conditions in particular which may give the indication for large resections of the bladder, namely, exstrophy, tuberculosis and tumor. For exstrophy, resection is indicated only in exceptional cases. In tuberculosis resection is only to be considered if the tuberculous process has reached the bladder by extension from the seminal vesicles.

Neoplasms offer the usual indication for extensive resection of the bladder wall, the operation being applicable both in benign and malignant tumors. It is almost impossible to decide in many cases whether a vesical tumor is benign or malignant, for villous tumors of the bladder which neither grossly nor microscopically show signs of malignancy, may act clinically as carcinoma.

Regarding the treatment of villous papilloma, the following rules apply:

1. Endovesical operations, cauterization with the aid of the operative cystoscope are improper and dangerous methods;\* since it is impossible to decide whether a given tumor is malignant or not.

\*[This rather radical view of the reporter is not in accord with recent results obtained in this country by the fulguration method.—Editor.]

2. We should ascertain the depth to which the tumor has penetrated by exploratory suprapubic cystotomy. When the mucous membrane alone is involved, wide excision of the mucous membrane is in order. Extensive resection of the mucous membrane is the proper treatment for diffuse papillomata.

3. In the case of carcinoma, we must decide between partial resection or total extirpation of the bladder. Total extirpation of the bladder naturally gives the best chance of radical cure. There are two points, however, which deter one from performing the radical operation. These are the high mortality and the difficulty of disposing of the ureters.

*Partial Resection.* The first resection of the bladder was performed in 1879 by Norton for papilloma. Up to 1895, 96 cases had been operated on in this way with a mortality of 21.8 per cent. Of the 75 survivors, 25 could not be traced. Of the remaining 50, there were but five who lived three years or more. Of these five, one lived six years after the operation. In an additional series of 16 cases including those of the author and other surgeons there was a mortality of 18.7 per cent.

*Total Extirpation.* The first total cystectomy was performed in 1887 by Bardenheuer. Of 58 patients on whom the operation of total extirpation of the bladder had been performed, 29 died as a result of the operation. Five patients died within 24 hours from shock; three cases died of peritonitis, 12 of pyelonephritis. An investigation of the question as to how the disposition of the ureters influences mortality, gives interesting suggestions as to the choice of the operative method. The ureters may be implanted in four ways: (1) into the wound; (2) into the intestine; (3) into the vagina and (4) into the skin. Of the thirteen cases that were treated by the first method, eight died immediately after the operation, and three died within 3½ months. Two lived for fifteen months after the operation. The implantation of the ureters into the intestine has been performed twenty-two times. Fourteen patients died immediately after the operation. Of the cases in which intestinal implantation was done, fourteen were implanted into the rectum, and of these, seven died immediately after the operation. Out of eight cases where the sigmoid was used, seven died shortly after the operation.

Implantation into the vagina has been done nine times, with an immediate fatality in four cases. Of the five patients who recovered, one still remained alive 15 years after operation.

Implantation of the ureters into the skin has been performed in fourteen cases, and only three patients died as result of the operation. Of these fourteen cases, ten were done according to the author's method, that is, lumbar ureterostomy, with but two deaths. It is, therefore, evident that implantation of the ureters into the skin is the

method of choice. The mortality (20 per cent), is lower than that of partial resection. The poor results as regards permanent recovery, are mainly due to the extremely advanced stage of the malady in most of the cases that present themselves for treatment. The fate of patients who survive the operation is always dubious, the chief source of danger being ascending infection of the kidney.

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*Report of H. Fenwick (London.)*

Even the most expert cystoscopist cannot definitely determine by the eye whether a single papilloma is benign or malignant. Fenwick therefore advises that a single and apparently benign papilloma should be removed and with it a free resection of the mucous membrane of its base be undertaken. If the tumor recurs after this treatment, the author suggests that the primary tumor was probably malignant, and that it would be best at the second operation to transplant the mouths of the ureters (if they are healthy) into the bowel, and remove the bladder before that viscus becomes incurably affected by the growth.

Fenwick further suggests that all multiple growths of a papillomatous type are probably malignant, or will eventually exhibit a malignant tendency; hence resection of the bladder is advised for this condition.

As regards definite hard carcinoma of the bladder the following conditions should determine the line of operative treatment:—

1. "Any thickening or infiltration of the bladder-base or wall, which can be detected by the finger in the rectum, prevents any removal of the bladder or any resection of the wall of the bladder.

2. The only form of bladder cancer which can be cured by the removal of a large area of the bladder-wall is a single, hard, sharply defined cancer of the apex (the upper third) of the bladder. In such a case, if the patient is met with *early*, and the peritoneum is not affected, a free removal of the apex should *cure* the patient.

3. Free removal of the entire wall of the bladder affected by a single, hard, sharply defined cancer of the middle third of the bladder (*front or side walls*) in an early stage may afford a five years' life.

4. No cancer of the base of the bladder, hard or soft, can be resected if the submucous or muscular layer be infiltrated. It may occasionally happen that a single, hard, sharply defined epithelioma of the mucous membrane away from the orifices of the bladder will be met with *early*, and when the growth is merely in the mucous membrane and movable. Under such conditions it may be freely removed, and such a procedure may afford relief for two years, but no resection of the entire thickness of the bladder is possible here.

5. All soft cancer of the bladder, wherever situated, is quite inoperable by resection of the walls of the bladder.

6. The only chance of curing soft cancer of the bladder is when

the tumor arises away from the base of the bladder. In such a case, if it is met with *early*, a cure may be effected by turning the ureters on to the loin or draining both kidneys, and by a subsequent removal of the bladder with the vesicles and prostate in the male, and the front wall of the vagina in the female.

7. It is held that no case can be recorded as an operation *cure* until ten years' freedom from symptoms have elapsed since the operation.

8. It is stated that the author's death-rate for papillomata of the bladder is 2 per cent., and that for all forms 7 per cent.

9. The number of cases generally reviewed for the report is 1,000, and specially considered is 300 operation cases of all kinds."

#### THE AMERICAN UROLOGICAL ASSOCIATION, NEW YORK SOCIETY

Stated meeting, Wednesday, December 6, 1911.

The Vice President, Walter Brouner, M.D., in the chair.

**A MODIFIED CYSTOSCOPE.**—Dr. K. B. Page presented a modified cystoscope in which the prism is situated on the convex side of the beak. The deflection of the field in this instrument was not 90° but slightly less, so that it looked forward. He believed that although this type of cystoscope had certain advantages in being less likely to dislodge the catheters upon its removal, he had not much success with it, himself. He still prefers the concave type as exemplified by the Nitze-cystoscope.

**CASE OF ECTOPIC GESTATION COMPLICATED BY GONORRHEAL SALPINGITIS.**—Dr. Page gave the history of a young woman who had been suffering from sub-acute gonorrhea with septic temperature. On laparotomy, a pus tube was removed from one side, the other tube and ovary, after liberation from adhesions, being found to be the seat of an ectopic gestation that had ruptured into the broad ligament.

**UNEXPLAINED RENAL HEMATURIA.**—Dr. Fuller described a case in which profuse renal hematuria gave the indication for nephrectomy. The absence of any evidence of microscopic lesion of the kidney was of unusual interest, and Dr. Fuller is awaiting the report of the pathologist for an explanation of the bleeding.

**PAPER: SEXUAL DISORDERS OF THE MALE CLINICALLY CONSIDERED,** BY DR. E. FULLER.—Dr. Fuller called attention to the importance of eliciting a thorough detailed history in cases of sexual disorder. Thus the frequency, duration, and character of the act in its relation to the normal should be inquired into. The nature of the ejaculation as regards quantity of the fluid, presence of abnormal elements such as blood, merits consideration. Previous diseases, too, such as syphilis, septic conditions, typhoid and perineal traumatism, may play a rôle in the production of sexual disturbances.

Discussing the value of a thorough physical examination, Dr. Fuller emphasized the necessity for expert palpation of the prostate and seminal vesicles, pointing out that a large number of sexual disorders depend upon lesions in the vesicles.

Although stripping and massage of the vesicles (a method introduced by the author some eighteen years ago) is valuable in therapy, Dr. Fuller believes that his operation of vesiculotomy is indicated in the severe cases. He has obtained good results in 95 per cent. of the cases operated upon, there having been no mortality in 221 cases.

#### DISCUSSION OF DR. FULLER'S PAPER

Dr. Page emphasized the importance of distinguishing between the cases in which the sexual disorders were dependent upon a psychic condition and those in which some real organic change was responsible. In his opinion the psychic influences are more frequently the cause of the disturbance. As regards the local lesions in the seminal vesicles, it is difficult to understand how the inflammatory changes could produce the manifold symptoms presented by the different cases. The question arises as to whether the drainage of the vesicles, as advocated by Dr. Fuller, does not lead to atrophy and whether such atrophy might not prove to be a greater source of irritation to the sexual centers than the previous inflammatory condition.

Dr. J. Valentine pointed out the necessity for gaining the confidence of the patient in eliciting a satisfactory history. In 1690 private patients presenting Genito-Urinary Diseases, 111 were found suffering from sexual disorders. Of these, 52 gave a history of gonorrhea, 24 of masturbation, 9 of coitus interruptus, and 2 of coitus condomatus.

Dr. Buerger said that he had been particularly interested in investigating the possibility of the existence of an anatomical basis in the posterior urethra for certain cases of impotence. The examination of many cases in which sexual disturbances were present, brought out the striking fact that in most of them no lesion either in the verumontanum, or in fact, anywhere in the posterior urethra or neck of the bladder, could be found. Another question that is worthy of consideration is the condition of the orifices of the ejaculatory ducts and their patency. It is possible, by means of the cysto-urethroscope, not only to determine whether the ducts are open, but in many cases, to pass a fine probe for several centimeters. Only an extended study of the distance a probe will pass in normal cases, will enable us to decide definitely whether in a given case a stricture of the duct exists or not.

Dr. O'Crowley said that it was most important to be able to determine the condition of the seminal vesicles by palpation, a method of diagnosis which he regarded as requiring a great deal of practice.

Dr. Corrigan wished to minimize the danger of incising the blad-

der when performing the operation of seminal vesiculotomy. In fact, he believed that the drainage of the bladder may even be of service, since a localized cystitis in the neighborhood of the vesicles may occur.

Dr. Begg emphasized the importance of the inflammatory condition of the vesicles in the production of the sexual disorders, asserting that psycho-therapy alone would not cure most of the cases.

Dr. V. C. Pedersen recited the case of a man who had had a recurring copious urethral discharge, distended vesicles and a chronic epididymitis. Seminal vesiculotomy was followed by remarkably rapid improvement. Thirty-six hours after operation the symptoms referable to the affected testicle had almost completely disappeared.

Dr. Schmitter said that affected vesicles are rapidly relieved by Dr. Fuller's operation. As regards the sexual disturbances of a nervous nature, the results are usually deplorable.

Dr. Barringer described a case in which there were no ejaculations, although examination of the bladder and urine on one occasion showed living spermatozoa. He believed that the case probably had some congenital anomaly.

Dr. Brouner discussed the importance of gaining the confidence of the patient in gaining an intimate history, for it is difficult to obtain a reliable story from most of the cases. He believes that most cases could be taken care of by the genito-urinary specialist.

Dr. Fuller in closing the discussion said that a larger number of cases than is generally believed, have local organic lesions in the vesicles, which are responsible. The operation of vesiculotomy certainly does not destroy the function of the vesicles in 95 per cent. of the cases, and in most of them potency is restored.

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#### NOTICE.

We are requested to announce that during February next, a meeting of the North Central Branch of the American Urological Association will be held in St. Louis. A number of prominent physicians will take part in the program. It is proposed to set aside one day for scientific papers and one or two days for clinics.

# THE AMERICAN JOURNAL OF UROLOGY

WILLIAM J. ROBINSON, LEO BUEGER, EDITORS

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## PROSTATECTOMY AND ITS INDICATIONS IN PROSTATIC HYPERTROPHY<sup>1</sup>

By THORKILD ROVSING, M. D.

Professor of Clinical Surgery at the University of Copenhagen.

THE two methods of prostatectomy which to-day stand opposed to each other and, which through their excellent, principal advocates, vie with each other for supremacy, are the methods of Freyer of London and Young of Baltimore. If I agreed with the two leaders as to the indications for prostatectomy generally, or, rather, in there being no contraindications for this operation, it would be difficult for me to choose between the two operations, all the more so since both operations—the perineal as well as the suprapubic—in Young's and Freyer's hands, are done with the maximum of technique and the minimum of mortality, facts that compel my greatest admiration.

I prefer the suprapubic method of prostatectomy, and consider it the normal method for *prostatic hypertrophy*; first and foremost, because I believe prostatectomy indicated only when the patient cannot be given satisfactory assistance by a simple suprapubic cystotomy; and, secondly, because the suprapubic extirpation, as taught us by Freyer, is far easier and quicker for non-specialists to perform.

My standpoint as regards the indications is founded on the following facts and reasonings, that I have previously stated on different occasions, as, for instance, at the Surgical Congress in Berlin in 1906.

(<sup>1</sup> Read at the 2nd International Urological Congress held in London, July 24th-28th, 1911.)



The suffering which we wish to contend with is the retention of urine with all its dangers and painful symptoms. Prostate-hypertrophy in itself is not only quite an unoffending change due to old age, but, possibly, an appropriate provision of nature. In any case, this organ is of such importance to the sexual and psychic life of the individual that one cannot be justified in removing it without compelling reasons.

So long as we can relieve the retention in the earlier stages, for shorter or longer periods, by occasional catheterization or by vasectomy, a major operation is, in my opinion, and probably in that of most doctors, not indicated.

It is only after the retention becomes permanent that we are confronted with the question as to the advisability of employing prostatectomy or *cystostomy*.

It would seem that there are two questions which must be considered in determining our course of procedure in this matter:—

(1). *Which of these operations affords the surest relief from the retention?*

(2) *Which has the greatest mortality?*

Regarding *cystotomy*, it cannot be disputed that this unfailingly, instantaneously and permanently relieves the retention. The same assertion may also be advanced on behalf of prostatectomy; but, in my opinion, this is absolutely untenable. It is obvious that prostatectomy must become ineffective in all instances where the bladder-muscles have permanently lost their ability to contract by reason of far advanced distention and atrophy. This, however, can be previously discerned by observing the force with which the urine is ejected through an inserted catheter. But even in cases where this test appears to give fairly satisfactory results, it may happen that prostatectomy proves ineffective; or, at least, has only a temporary effect. This is already evidenced by my small contribution of 25 prostatectomies. In two instances the retention continued quite unaffected, so that it later became necessary to perform suprapubic cystostomy. In the two other instances the retention redeveloped after some time, as the result of stricture formation in posterior urethra. Therefore, one can not promise the patient that prostatectomy will relieve the retention, or assure him that there will be no return of his former symptoms.

As for the second question, when suprapubic cystostomy

is performed *lege artis*, in Trendelenburg's position, with a careful avoidance of peritoneum, under local anesthesia, and with a closely sewn-in Pezzer's drain, whereby all oozing of urine into the wound is with certainty avoided, it has scarcely any real mortality. The patients may, of course, be so uremic and exhausted that the operation cannot avert death. Therefore deaths naturally figure after the operation, but certainly with extreme rarity as a result of it. I have performed the operation on 125 prostate patients who were, on an average, far advanced, with only one death.

This cannot be said of prostatectomy. Quite apart from the fact that narcosis is here necessary, and that the dangers connected with this threaten the old and debilitated individuals, the operative method itself involves considerable and direct danger to the life of the individual; especially from hemorrhage of the arteriosclerotic vessels and from infection of the great cavity left by removing the prostate (suppuration, thrombosis, embolism, etc.). The mortality certainly cannot be estimated at less than 10-20%.

It is true enough that those who have made this operation their specialty, especially Freyer and Young, have in the course of years reduced its mortality to 4-5%, and Young has even lowered this percentage. But we must not let ourselves be led by this into believing that this is the real mortality of the operation in the hands of a majority of surgeons. You will find a far higher rate of mortality from this operation in the wards of the large hospitals all the world over. In my opinion, this is not due only to deficient technique, as compared with that of the specialist, perhaps least of all so, but far more to the advanced stage of the cases. Those patients who are in a position to undertake a journey to London or Baltimore from distant lands, are far better subjects for an operation than those who, owing to the gravity of the disease, are tied to the spot. Therefore, the famous specialists, to whom the patients resort from all parts, have a far more favorable material to work upon. Finally, in addition, they undoubtedly operate with far more extensive indications, much earlier and on younger, stronger individuals.

As regards my own statistics, these include 25 prostatectomies for prostate hypertrophy—22 suprapubic and 3 perineal. Of the 22 cases of suprapubic prostatectomy, 14, when discharged, voided urine naturally. Of these, 3 were re-admitted

with relapse: 2 on account of stricture, which was dilated by bougies, 1 on account of a relaxed bladder, for which secondary cystostomy had to be performed.

Five were discharged with cystostomy and Pezzer's catheter; 4 on account of continual retention; 1 because the patient preferred to retain the cystostomy with which, for a number of years, he had managed to get along quite well.

Three died (13.6%), 1 from incessant hemorrhage, 1 from infection (diabetes), 1 became insane after the operation and died in 4 days without ostensible reason, there being no temperature and no hemorrhage.

Of my three cases of perineal prostatectomy undertaken after Young's directions, 1 died from uremia (sepsis?), having had nephritis and previous abscesses in the prostate.

I have also had under treatment two patients upon whom perineal prostatectomy had been performed elsewhere. With the one a recto-vesical fistula had remained, feces being discharged through the bladder and urethra. Twelve large bladder stones were found which had developed as a result of cystitis. By the aid of a cystostomy and a colostomy, I provided this patient with an endurable existence.

The other patient was admitted with retention of urine and cystitis, wherefor cystostomy had to be performed.

I will freely admit that those patients in whom prostatectomy is completely successful, so that normal urinary conditions are produced, are satisfied and fortunate; but the operation is so dangerous to life, and offers so many incomplete results, that it should not be the normal operation, but be applied only where the cystostomy does not satisfy.

The discredit still attaching to the suprapubic fistula is really due to the less successful methods of operation and drainage still so generally used, and to neglect in carefully training the patient to observe the urine and maintain its aseptic condition. In the utility and value of this fistula, much depends on:—

1. The employment of a small incision joined accurately around a thick Pezzer-catheter (No. 26-28 Fr.), the flange of which is drawn close up against the bladder wall, which is not affixed to the abdominal wall, but is allowed to sink freely back into the pelvis.

2. Allowing the patient's urine to remain diluted by the drinking of much distilled water ( $1\frac{1}{2}$ -2 litre per diem.).

3a. The injection of a 1% solution of silver nitrate into the bladder regularly, after the removal of the catheter, this being done every 4-6 weeks.

3b. Never rinsing the bladder with weak antiseptic solutions like boracic water and the like, when the urine is clear; because, hereby one risks rather infecting the urine. If, however, signs of infection appear, then an injection of a 1% solution of silver nitrate is at once appropriate.

4. The patients should not wear urinals, but have a cork in the Pezzer catheter and empty the bladder whenever necessary.

*With all very debilitated prostate patients, whether this is due to old age only, or, also, to urine intoxication resulting from the protracted urine stasis, or to urine infection or to hemorrhage, the operation should, in my opinion, be temporarily limited to a cystostomy.*

When the patient has recovered his strength, and when the function of the kidneys has attained its equilibrium, and the infection been removed, then, if the condition attendant on the suprapubic fistula is so unpleasant for the patient (hemorrhage, cystitis, stone formation, etc.) that he prefers the risk involved with prostatectomy, one can with ease and with far less danger perform it *secondarily* through the cystostomy opening. This usually only requires dilatation with Hegar's dilators, and at the worst demands two small incisions of the fibrous ring, at the sides.

*Primarily*, I consider prostatectomy to be indicated by *perilous hemorrhages from the tumor*, and in all cases where this is so large, and protrudes so far into the bladder that it will come in conflict with the Pezzer catheter.

I therefore prefer Freyer's suprapubic prostatectomy, but employ a different technique on several points:—

1. I operate in Trendelenburg's position and carefully push the peritoneal fold upwards.

2. I perform a crescent shaped incision of the mucous membrane over the prostate tumor with Paquelin's knife.

3. I perform the enucleation with rubber-gloved finger.

4. I pack the cavity, left by the prostate, with nitrate of silver gauze, which is led out with a thin strip in front of the Pezzer drain, round which the bladder wound upwards is sewn tightly together. In this way I succeed in keeping the patient dry from the moment of operation. I do not understand why Freyer allows his to welter in urine and blood.

## URETERAL CATHETERIZATION AS A THERAPEUTIC MEASURE

By HOWARD LILIENTHAL, M. D., New York.

Visiting Surgeon to Mount Sinai and Bellevue Hospitals.

**F**ROM its inception the Cystoscope has proven itself a mighty aid in the diagnosis of intravesical disease.

Gradually its field of usefulness increased, first making possible, by the exercise of considerable patience and skill on the part of the operator, the catheterization of the ureters one at a time; then with the improvements in the optics and mechanism of the apparatus making easy the double ureteral catheterization without withdrawing the instrument.

At the same time certain operative work through this wonderful contrivance was undertaken such as the extraction of foreign bodies from the bladder, the removal of bits of tissue for diagnostic purposes, and now through the discovery of Beer, even the electrical destruction of certain intravesical growths which would formerly have required a cutting operation.

Also the local treatment of infections of the renal pelvis by lavage or by the application of remedies has been successfully developed.

The following histories are interesting illustrations of the curative power of mere catheterization of the ureters:

*Case 1.* Mrs. A., 35 years old, four months pregnant, had fever and strangury for more than a week. There was vomiting which did not have anything to do with the pregnancy as such. There was backache and slight tenderness in the region of both kidneys. The scanty urine contained red blood cells, numerous white cells and a little mucous.

Without anesthesia she was cystoscoped and catheters passed into both ureters, drawing very cloudy urine from the left side and slightly turbid urine from the right. The urine from the left catheterization was evidently under considerable pressure. The immediate results were remarkable, all the patient's subjective symptoms disappearing in 24 hours so that in still another day she insisted upon leaving the hospital.

A few weeks afterward the symptoms returned but with less severity, and a second catheterization again relieved her. I then lost track of this patient, although I was subsequently informed that a month or more after the last catheterization she had an attack which yielded to purely medical measures.

It appears unfortunate that the distressing pyelitis of

pregnancy is not more often treated through the ureters.

*Case 2.* On October 13, 1911, Mrs. Anna H., 39 years old, consulted me on account of a uterine fibroid, about the size of an adult's head. Beyond a feeling of weight and the accidental discovery of a hard mass in the right iliac region, which she said was about the size of a large egg, there were no changes in general health. Menstruation was regular and the urine seemed normal.

On account of the apparently very rapid growth of the tumor I advised its removal and on October 16 the patient went to Mt. Sinai Hospital where supra-vaginal hysterectomy with conservation of the ovaries was performed. The operation was simple and the abdomen closed without drainage. Following the first reaction temperature of 102 degrees the case ran a normal course for more than a week when the patient began running a gradually increasing temperature with headache, nausea and chills.

She looked ill and I was much disturbed because I could find nothing to account for the evil symptoms. On November 1, I requested Dr. Manges to see her and he detected sensitiveness in the right renal region. Careful examination of the urine by the House Staff discovered merely a trace of albumin and some leucocytes. The case having been diagnosed as a pyelitis I questioned the patient rather closely and discovered that she had had one previous attack of illness something like the present one. With the idea that she had been suffering from some general colon infection I had been treating her for the past week with urotropin and copious draughts of water which was the therapy which would have been adopted had the diagnosis of pyelitis been made earlier.

The day after the discovery of tenderness in the right renal region I catheterized the ureters, drawing cloudy urine from both kidneys, the right one showing more evidence of pyelitis than did the left. Immediately the temperature dropped and the subjective symptoms vanished. The convalescence progressed normally, and two weeks later the patient was discharged. A month after she left the hospital she reported well.

*Case 3.* After eleven days of severe right sided backache, fever and ischuria gradually going on almost to suppression, Mr. W. K. was seen by me at the request of his physician, Dr. L. Freedman.

The doctor informed me that the immediate cause of his seeking my advice was the occurrence of uremic symptoms, notably constant muscular twitching, which had persisted for the past

24 hours. I found the patient a feeble old man of about 70 years of age, suffering great pain in the right back and loin with a temperature which ran as high as  $103^{\circ}$ , with considerable nausea and great general distress and malaise. The urine on gross examination was quite clear but scanty. There had been occasional slight hematuria.

Another surgeon had cystoscoped this patient some days before, but had contented himself with the mere observation of the ureteral orifices and had diagnosed the case as one of pyelitis. I advised radiographic examination and for this reason he was transferred to Mt. Sinai Hospital, where good plates by Dr. Jaches failed to demonstrate the presence of calculus, and the next day, October 21, 1911, I cystoscoped him under alypin local anesthesia. There was only moderate enlargement of the prostate and a little trabeculation of the vesical walls.

A catheter was passed into the right ureter, the mouth of which looked slightly edematous. At one point in the ureter, about ten centimetres from the bladder, slight resistance was encountered, but this was finally passed. Almost immediately a drop of thick muddy looking fluid oozed from the end of the catheter and after a dozen such drops had been collected there was a sudden gush of chocolate colored urine, gradually becoming clearer. Never had I noted such tremendous tension of the kidney, the urine pouring out in a quick and steady stream, so that in a few moments over two ounces had been collected. The patient felt immediately a great sense of relief. I then passed a catheter about five centimetres into the left ureter drawing lemon-colored clear urine in normal quantities.

From this time the patient's condition improved with wonderful rapidity, the temperature dropping and the pain subsiding. In a few days he went home, where, under medical treatment, the convalescence was continued. He occasionally complained of a little uneasiness in the right lumbar region and to satisfy his mind reported early in December, for another catheterization. The change in the patient's appearance was startling, he looked fully fifteen years younger, and every visible trace of his recent illness had disappeared. The urine was passed freely and in normal quantities, and by ureteral catheter was clear and amber-colored from each kidney. Analysis showed merely the interstitial changes of age and gave but slight evidence of pyelitis. The urine of the right kidney at the first catheterization contained much mucous, pus, granular detritus and some red cells.

It is probable that my ureteral catheter dislodged a plug in the ureter and that the subsequent polyuria under appropriate

therapy served to keep the passage clear. Considering the extremely precarious condition of this man at the time of the first catheterization, it is my opinion that he would soon have died had not the obstruction been relieved by means of the instrument. All ordinary medical measures for relief had been employed before the cystoscopy. This case, especially the instant relief by catheterization of the ureters, was most spectacular.

*Case 4.* Mr. B. A., a man of 24 years, had two small calculi in the pelvic portion of the left ureter, about five centimetres from the bladder. Symptoms had existed for years and internal treatment, including the daily ingestion of copious draughts of water, failed to give relief.

The right ureter on cystoscopy was normal, and in the left there was an obstruction to the ureteral catheter by the calculi, so that it was not even possible to aid the passage of the stone by the injection of oil. Therefore I operated upon him, December 9, 1910, and owing to the extreme difficulty of manipulating these small calculi some intraureteral traumatism resulted. The wound was closed with drainage and for the next two weeks most of the urine from the left kidney found its way out at this drainage opening. Coincidentally with the diminution of this flow he began to suffer pain and had elevation of temperature, so that I diagnosed incipient stricture of the ureter at the site of operation with backing up into the kidney. With the aid of the cystoscope I succeeded in passing a small catheter through the obstructed region and left it in place, so that the urine from the left kidney was collected in a bottle at the side of the bed, the patient passing the remainder in the normal way. Urotropin and water-drinking served to keep the urine clear and aseptic.

At the end of forty-eight comfortable hours, during which no urine passed through the fistulous opening, I withdrew the catheter, but pain and fever gave warning that the instrument had been removed too soon and it was therefore replaced, and kept in the ureter for two weeks. He then remained well and was discharged with instructions to continue water-drinking and to report any untoward symptoms. Not having heard from him I assume that he remains in good health.

Had the cystoscope never done more than relieve and cure such conditions as those reported here, accomplishing by simple and bloodless means what would otherwise have been possible only through great surgical effort and danger, it would still have proved itself a most desirable help to the surgeon and a boon to humanity.

48 East 74th Street.



## TWO CASES OF PNEUMO-SCROTUM FOLLOWING NEPHROTOMY \*

By E. L. KEYES, JR., M. D., New York

**A** CURIOUS and unusual complication occurred in two cases in which I recently explored the kidney. A brief review of the literature has revealed to my eye no record of a similar accident. Indeed since this complication can only occur when the lumbar wound is closed without drainage the chances of its occurring have been relatively few in the past although they will doubtless grow more frequent in the future.

The first case was an Irishman, 29 years of age; a coachman. He complained that for 18 months he had suffered from attacks of pain in the left loin not sufficiently severe to be entitled renal colic, yet enough to make him quit work for the day. These pains lasted for 6 or 8 hours, usually beginning about 11 A. M., often occurring on two successive days, but followed by a long interval of relief. For the past year this interval of relief had been approximately a week, so that every Friday and Saturday (although his work was no different on those days) he looked for the pain. The attacks were always accompanied by "wind on the stomach" and at first he could relieve them by massage and eructation of gas; but for months he had been unable to obtain this relief.

Examination both during and between attacks revealed nothing significant. The urine was dense (1023, containing 3% urea) and contained a trace of albumin, many hyaline and granular casts, but no pus.

Cystoscopy in August, 1911, showed a normal bladder, and normal ureter orifices. A lead painted catheter was inserted into the left ureter but could not be introduced further than 20 c. m. and after removal of the cystoscope it was found that this catheter was plugged, so that it was impossible to inject the kidney pelvis either for the purpose of studying its capacity, or the pain evoked, or to radiograph it. Comparative specimens were therefore taken from the right ureter and from the bladder; an intravenous injection of phenolsulphonephthalein having been given. This appeared in 4 minutes from the ureter catheter, and in 15 minutes thereafter the urine from the right kidney contained 5% of phenolsulphonephthalein, and 1.6% urea; while that obtained from the

\* Read at New York Academy of Medicine, section on Genito-Urinary Surgery, December 20, 1911.

bladder contained .8% urea, and no phenolsulphonephthalein whatever.

Subsequently 17% of phenolsulphonephthalein were obtained from the bladder in the first hour after intramuscular injection; 9% in the second. Radiography failed to show stone.

On Oct. 3, 1911, I exposed the left kidney through the lumbar incision. It was increased in size to about twice the normal and I could not deliver it. I divided and tied a vein running from the lower pole. After this the dilated renal pelvis came well into view. The ureter was dilated for about 1 c. m. No marked adhesions were found at this point, wherefore it was inferred that the hydronephroses was due to kinking about the vein which had been divided.

The renal pelvis was not opened. The kidney was sutured in good position, and the wound closed without drainage.

On the second day the patient's temperature reached 102.4, and on the following day the house surgeon called my attention to what he termed an epididymitis on the left side. This proved to be a marked emphysema of the left side of the scrotum. The general outline resembled that of a severe gonorrheal epididymitis, but palpation showed the testicle and its appendages to be insensitive and normal in size, while the whole of the scrotum was distended with air which distention could be followed up the inguinal canal until it was lost at the internal ring. No treatment was employed except elevation of the scrotum.

The temperature fell below 100° on the fifth day and so remained. The wound healed by primary union. The emphysema gradually disappeared. The patient was out of bed on the eighth day and left the hospital on the eleventh day with still a trace of emphysema and a temperature running to 99° in the evening. A week later he was normal in every way and on Dec. 15th he reported himself entirely well having had no further attacks of pain, no return of emphysema and having gained 25 lbs. in weight since his operation.

The second case was an Italian laborer, 23 years of age who was shot through the body on August 24, 1911. He was admitted to St. Vincent's Hospital and immediately operated upon by Dr. J. J. Higgins, who found and sutured a rent in the posterior wall of the stomach. There was also a perforation of the left lobe of the liver and a large hematoma in the region of the left kidney. The abdominal wound healed kindly but he had a septic fever for a month.

On Sept. 27th clear serum was aspirated from the left pleural cavity, and about this time an X-ray was taken which showed a bullet lying over the eleventh rib close to the spine. After the subsidence of his temperature his general condition improved very slowly. There was a good deal of pus in the urine and he urinated every hour day and night. He refused to permit cystoscopy either with or without anesthetic, being willing to submit to only one operation.

I accordingly cut down upon the left kidney and found it surrounded by a dense mass of adhesions. The pelvis was separated with great care but no kink or obstruction found there. The upper pole was freed with considerable difficulty and showed a scar where the bullet had tranversed the parenchyma at about the junction of the upper and middle thirds of the organ.

There was a band of vessels entering the upper pole of the kidney, and since delivery of the organ through the loin would have required that these be cut the kidney was examined inside the wound. Inasmuch as no pus was found and the kidney pelvis was not opened, the wound was sutured without drainage.

After operation the temperature rose to 103° on the second day, and as in the previous case the scrotum was found filled with gas, which in this instance did not disappear and the temperature did not go down. On the fourth day, therefore, I opened the central portion of the wound in the loin and permitted the escape of a great quantity of gas and fecal matter mingled with a little pus. Tubes were inserted and now two months after the operation although the patient has gained greatly in strength and urinates only every two hours and the fecal fistula has long since closed, he is still in the hospital with a sinus that discharges pus freely.<sup>1</sup>

Commentary upon these two cases is unnecessary. I find in my case books the record of 78 operations upon the kidney and only in these two cases have I seen this complication.

In the second case the gas was obviously derived from the colon which was closely adherent to the upper pole of the kidney, and which was unwittingly torn free in separating the adhesions.

In the first case, however, I have no explanation either for the appearance of the gas or for its disappearance.

#### DISCUSSION

Dr. James Pedersen said that the explanation given by Dr.

<sup>1</sup> He left the hospital January 9th, 1912, healed and urinating at normal intervals, but with purulent urine.

Keyes for the second case of pneumo-scrotum seemed to him the correct one. The air must have become shut up behind the peritoneum. The only case of pneumo-scrotum he himself has ever seen was the result of carelessness on the part of an orderly. When preparing to aspirate a hydrocele, the orderly was told to exhaust the air from the bottle into which the fluid was to flow; instead of exhausting the air, he condensed it. The valve having been opened the instant the needle had pierced the skin, an instantaneous pneumo-scrotum was produced. The air disappeared by absorption in four or five days.

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Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

## ECHINOCOCCUS CYST OF THE KIDNEY

By W. E. LEIGHTON, M.D.,

Surgeon St. Louis City Hospital; Associate Surgeon Barnard Skin and Cancer Hospital; Assistant Professor of Surgery, St. Louis University Medical Department;

And

BRANSFORD LEWIS, M.D.,

Professor of Genito-Urinary Surgery, St. Louis University Medical Department.

**T**HE very rare condition of Echinococcus Cyst of the Kidney, especially in North America, is the reason for presenting this paper and specimen to-day.

The patient entered my service at the St. Louis City Hospital with the following history:

Female, white, 35 years of age, married, mother of four children. Born in Italy, but living in this country for the past two years. She entered the hospital on account of a tumor in the right lumbar region, and from which she suffered great pain and distress. The tumor had been present about four years, to the best of her knowledge, and had gradually increased in size until she was no longer able to work from its size, feeling of weight and intense pain. The history is somewhat unsatisfactory, due to the fact that the patient spoke very little English.

Family history: Negative.

Past history: Fever for a month after childbirth.

Physical examination: Poorly nourished, emaciated, and skin sallow. Lungs negative. Heart enlarged, apex in seventh

interspace outside of nipple line. Blowing systolic murmur present. Inspection of abdomen revealed a tumor in the right lumbar region, which bulged outward and forward. Percussion showed it to extend from the border of the ribs to the iliac fossa and about one inch to the left of the middle line. The tumor was smooth, rounded, and solid to the touch, except at a point near the umbilicus, where it felt soft or cystic. While the tumor was continuous with the liver dullness it was movable. The tumor occupied the space of the right kidney. The left kidney not enlarged. Spleen was not palpable.

Urinary examination showed a specific gravity of 1020, acid, contained a trace of albumin, but no sugar. The sediment showed a few fine granular casts, round and squamous epithelium, and many leucocytes.

A tumor of the right kidney was diagnosed, the nature of which was uncertain. The patient was seen by Dr. George Crandall and Dr. Bransford Lewis, who made a cystoscopic examination. The bladder was normal in appearance. The left ureter was easily catheterized and clear urine collected. The right ureter could only be catheterized for about one inch, from which oozed a turbid fluid. Samples were collected and examined. That from the right ureter showed only pus cells with no kidney elements, while that from the left kidney corresponded with the previous urinary examination, and showed a chronic nephritis of the left kidney.

Our efforts to determine the nature of the tumor being fruitless, and, having ascertained that there were two kidneys, we decided to perform an exploratory operation, as the patient was growing worse.

On March 26, 1911, under ether anesthesia we exposed the right kidney by an oblique lumbar incision. Instead of the usual appearance of the kidney we found a white, hard tumor similar to a thick walled ovarian cyst. A line of cleavage having been found, the tumor was readily freed, except at a point where it was adherent to the ascending colon. In attempting to free this the tumor ruptured, and a small amount of fluid with many egg-like cysts escaped. Up to this time the nature of the tumor was doubtful, but the small cysts suggested its parasitic nature, which was demonstrated at the close of the operation by finding the scolices. With the escape of the contents there was left only a thin-walled sac, which represented the remnant of the kidney.

The large intestine was torn in attempting to free this sac, and for fear of producing further damage to the intestine, we were obliged to cut off and leave a portion of the sac attached. The pedicle was ligated and the sac removed. The wound in the intestine was sutured. Ample drainage and suture of the lumbar incision completed the operation.

The patient experienced considerable shock, but rallied toward evening. The wound drained well for several days. She passed nine or ten ounces of urine daily. Her temperature never reached above 100.6 F. Pulse, however, was weak and rapid. Thirst was extreme, and vomiting was persistent from the first. She was slightly delirious at times, but on the 30th became comatose and died the next day.

Unfortunately no autopsy could be obtained, but the lungs, heart, spleen, and other kidney were removed through the operative wound. No other cysts were found. The heart was dilated and showed an insufficient mitral valve. The left kidney was enlarged, red, and showed chronic changes.

Description of the tumor: Before rupture the tumor was about six to seven inches in diameter. It was found to contain about fifty unruptured cysts, varying in size from a pea to a large-sized hen's egg; also about eighty or ninety collapsed cysts. The tumor did not contain much fluid.

The pathological report of the tumor by Dr. D. L. Harris is as follows: Sections taken from the wall of the sac at several places showed only chronic inflammatory tissue, with no evidence of functioning kidney tissue, except a few scattered tubules. Fluid taken from the cyst showed scolices and hooklets.

The etiology of this disease is interesting. Lyon,<sup>1</sup> searching through the literature of the United States and Canada, found 241 cases of echinococcus disease reported up to July 1, 1900. Among this number there are only ten cases of hydatids of the kidney, and in three of these there were cysts of other organs. Since that time I have been able to find only one other case, which, with the one I have described, make a total of twelve cases of echinococcus cyst of the kidney occurring in North America. In Lyon's tabulated cases, the kidney was affected in 3.7%. Finsen places it at 1.17%; Thomas of Australia, .065%, and Morris 5.4%<sup>2</sup>. The latter figures, according to Gardner,<sup>3</sup> who has had considerable experience with the disease, are too large, and he is supported by Crandall and Vegas of

Buenos Ayres, who collected 1696 cases of hydatid disease and found the kidney affected in .021%.

An abstract of the cases previously reported is as follows: The first of these cases are from Lyon's series, and the case number is retained:

*Case 23*, Marsh, 1869, *Cincin. Lancet and Obst.* N. S. XII, 539. Male, 53 years of age, Indian Hill, O. Hydatid of Kidney. Removed at autopsy.

*Case 34*, Fauntleroy, 1878, *Virg. Med. Monthly*, Richmond, IV, 282. 45 years of age, Staunton, Va. Hydatid of Kidney.

*Case 74*, Olser, 1885, *Transact. of the Path. Soc.*, Phil., XII, 217. Male, 58 years of age, Englishman, Ontario, Canada. Cysts and hooklets passed in urine.

*Case 80*, Stavely, A. L., 1889, *Montreal Med. J.* XVIII, 148. Male, 43 years of age, Russian (Pole), Reading, Pa. Hydatid of right Kidney, Hooklets.

*Case 84*, Kinjoun, 1890, *U. S. Marine Hospital Report* XLIX, 147. Male, 38 years of age, Swede, N. Y. City. Cysts in Liver, Kidney and Bladder.

*Case 85*, Allaben, 1890, *North Am. Pract.*, Chicago, III, 612. Female, 52 years of age, German, Argyle, Ill. Multiple cysts in bladder, pelvis, liver, spleen, kidney, omentum, peritoneum, diaphragm and pericardium. Had passed cysts per rectum. Hydatid removed from abdominal cavity, 1879.

*Case 108*, Ferguson, A. H., 1893, *Northwestern Lancet*, XIII, 41. Icclander, Winnipeg. Hydatid of kidney.

*Case 109*, Ferguson, A. H., 1893, *Northwestern Lancet*, XIII, 41. Icclander, Winnipeg. Hydatid of kidney.

*Case 143*, Keyes & Busch, 1896, *Buffalo Med. Journal*, XXXV, 25. Male, 53 years of age, German, Buffalo, N. Y. Multiple cyst in lung, omentum, mesentery, subdiaphragmatic, left kidney, and sac of left inguinal hernia. Scolices and hooklets.

*Case 181*, Mercier, O. F., 1900, *L'union Med. du Canada*, Montreal, XXIV, 427. Male, 55 years of age, Canadian, Montreal. Large cyst in region of right kidney, with daughter cysts.

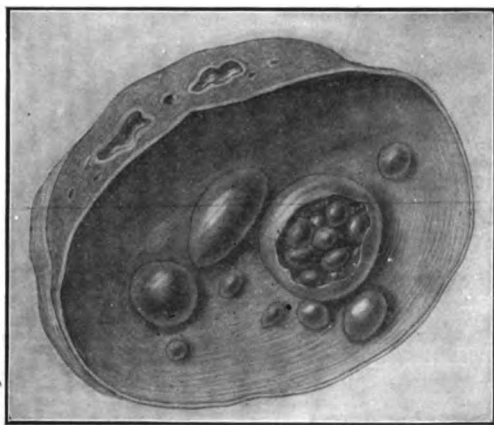
*Haynes*,<sup>4</sup> 1902, *Annals of Surgery*, XXXVI, 95. Male, Italian, living in N. Y. Hydatid cyst of the right kidney found accidentally during an operation for appendicitis. Kidney removed. Death due to pneumonia.

Geographically, echinococcus disease is found especially in Iceland, Germany, Australia, Italy, and Argentine Republic, and

among those classes who associate closely with dogs. In this country it is extremely rare, and a great majority of all cases is in foreigners.

**Biology:**<sup>5</sup> The *Tenia echinococcus* is a tiny thread-like cestode 4-5 mm. in length, found among the villi of the upper part of the intestine of the dog. It consists of three or four segments. The head is small and provided with four sucking disks and a rostellum surrounded with a double row of twenty-five to fifty hooklets. The terminal segment, called the proglottis, alone is mature, and contains about 5,000 eggs within, each one of which is a small embryo or oncosphere.

The terminal segment of this cestode is discharged in the feces of the dog, and the egg, which is said not to be very resistant, gains access to the intermediate host (sheep, cattle, hog, man, etc.), through contaminated food or drinking water, or, in the case of man, possibly from hands soiled while petting dogs.



Cross section of tumor, showing remnant of kidney with calices, and reproduction of cyst contents.

On arriving in the stomach the enveloping membrane is digested, and the oncosphere or six-hooked embryo bores its way into various parts of the body, or is carried by the blood and lymph to distant organs. Here it comes to rest and undergoes the following changes: The hooklets disappear and the little embryo is converted into a small cyst, which presents two distinct layers, an external, laminated cuticular membrane, or capsule, and an internal, granular or parenchymatous layer, the endocyst. The cystic fluid has a specific gravity of 1005-1009, does not contain



albumen, but does contain sugar. As a rule, scolices or hydatid heads and hooklets are present. Outside of the external layer an inflammatory reaction takes place in the tissues and a dense fibrous tissue develops, which is known as the ectocyst. Later buds develop from the granular layer, which are gradually converted into cysts called daughter cysts, presenting a structure identical with that of the parent cyst. Inside the daughter cyst a similar process may occur, and grand-daughter cysts are developed. From the lining membrane of parent and daughter cysts buds arise, which develop into brood capsules. Within or upon the walls of these brood capsules scolices develop. When fully developed, the scolex measures about 19 by 16 mm. and represents the head of the *tenia echinococcus* presenting four sucking disks and a circle of hooklets. Each scolex is capable, when transferred to the intestine of a dog, of developing into a tape worm. In cases of multiple *echinococcus* cysts of the peritoneal cavity, it has been shown that the disease may develop from a rupture of the primary cyst, and the escaping scolices becoming implanted or grafted upon the surrounding tissue, may produce secondary cysts.

The symptoms are often absent until the tumor is so large as to attract attention to it. Pain from pressure may be present when the tumor is large enough to impinge upon other organs. Suppuration of the contents are accompanied by chills, fever, and sweating. Rupture of the cyst into the urinary pelvis is characterized by attacks simulating renal colic, with passage of daughter cysts, or scolices and hooklets. Cachexia<sup>6</sup> sooner or later appears, due to a toxemia resulting from an absorption of the hydatid fluid.

The diagnosis of *echinococcus* cyst of the kidney is not easy. "Among twenty-eight cases cited by Morris in which renal hydatids have been submitted to operation, there were thirteen in which errors were made, four in which the operator was undecided, and eleven only in which a correct opinion had been formed. Renal hydatids have been mistaken for ovarian, mesenteric and splenic cysts, and for the following tumors of the kidney: (1) Hydronephrosis, (2) simple cyst of the kidney, (3) polycystic disease of the kidney, and (4) cystic sarcoma of the kidney." A cyst with tense walls containing little fluid and many daughter cysts, as in this case, can be hardly differentiated from solid tumors of the kidney. Fremitus, when found, is absolutely diag-

nostic of the condition, but unfortunately is not often found. It is obtained by placing one hand on the tumor and tapping sharply with the other; a thrill will be imparted to the fingers. The same can be obtained by auscultatory percussion. Finding scolices or hooklets in the urine or aspirated fluid is also positive. The serum-reaction<sup>7</sup> gives promise of great assistance along the line of diagnosis, but as yet is only in the experimental stage of development.

In the absence of the hydatid fremitus, the escape of the cyst contents by the ureters, the serum-action, or the result of aspiration<sup>8</sup> or exploratory incision, a positive diagnosis can scarcely be made.

The prognosis depends upon the duration of the disease, the extent of involvement and complications, such as suppuration, rupture,<sup>9</sup> etc. The operative mortality is high for nephrectomy, but practically nil for nephrostomy.

The treatment for hydatid cysts of the kidney is surgical. Conservative surgery should be practiced and the kidney or any portion of it should be saved if possible. Three procedures are available, depending upon the extent of the destruction of the kidney.

1. Nephrectomy may be performed where the kidney substance appears to have been entirely destroyed by compression. The mortality from the operation is 21.47%.

2. Nephrostomy, or marsupialization, is the choice of most operators on account of its simplicity and low mortality, which is about 6.12%.

3. Resection has been performed 10 times with 2 deaths. The lumbar route should be employed since there is less danger of hydatid intoxication and implantation of scolices.

#### REFERENCES.

1. Lyon: *Am. Jour. Med. Sc.* 1902, cxxiii, 131.
2. Morris: *Surgical Diseases of the Kidney and Ureters*, 1901, i.
3. Garceau: *Tumors of the Kidney*, 1909.
4. Haynes: *Annals of Surgery*, 1902, xxxvi, 95.
5. Osler: *Modern Medicine*, i.
6. Dieulafoy: *Text-Book of Medicine*, 1910, i.
7. Syme: *Brit. Med. Jour.*, 1909, ii, 956, and Eckenstein: *London Lancet*, 1910, ii, 377.
8. Dieulafoy; *Loco cit.*
9. Boidin and Laroche: *J.A.M.A.*, 1910, liv, 1908.

## NEPHRECTOMY IN A CASE OF BILATERAL PYELONEPHRITIS. RECOVERY

By M. KROTOSZYNER, M. D., San Francisco.

THE literature contains records of but a few cases of advanced bilateral renal lesions, which could be permanently benefitted by the removal of one kidney. The observation, which is the subject of this communication, furthermore offers features of unusual interest, and is, therefore, reported in detail.

*Past history:* The patient, a man of 54, was referred to me, about 2 years ago, by Dr. Wanzer. His family and previous histories are unimportant except that he had lived in a malarial country and had suffered from repeated attacks of intermittent fever during the last 20 years. The first symptoms of his present ailment occurred in the spring of 1906, when he, during the great San Francisco fire, was compelled to camp out for several nights, and, owing to the exposure and excitement, was seized by one of his usual attacks of chills and fever, which, in this instance, was complicated by frequent and painful micturition and urinary incontinence. His condition was diagnosed as "inflammation of the bladder," and treated as such for a long time with bladder-washes and internal remedies with the result, that his urinary symptoms gradually increased in intensity, while his general health broke down completely. Of late the attacks of chills and fever occurred almost daily, so that the patient became bed-ridden; purulent urine dribbled almost constantly from the meatus, he became very emaciated and extremely weak; he was at times semi-conscious and often, especially at night, delirious.

*Present history:* The patient looks markedly cachectic and anemic; his pupils react but sluggishly; he is drowsy and answers incoherently, or not at all, to questions; his skin is dry; his temperature ranges between subnormal and 102 F., his respiration between 20 and 30, his pulse between 100 and 120; it is feeble and at times irregular. By physical examination nothing of pathological note can be revealed, except that the lower edge of the liver is palpable about 3 cm. below the costal arch. Kidneys not palpable. Purulent urine dribbles from the meatus into a urinal which lies constantly between the patient's thighs. By catheterization about 400 c.c. of urine are withdrawn; upon exam-

ination, it is found to contain a heavy cloud of albumin, no sugar, no diazo. Indican markedly increased, microscopically—abundant pus—and a few red cells, no tub. bac. are found. Noteworthy items of the complete blood examination are: 15,400 Leukocytes, 88% Polymorpheonuclears, no Plasmodia; X-Ray plates negative as regards calculi shadows in the urinary tract.

*Cystoscopic findings:* The first attempt at cystoscopy failed on account of impossibility to obtain a clear medium and because the patient's precarious condition made extended cystoscopic sittings prohibitive. Therefore the bladder is drained by a retaining catheter, through which the viscus is irrigated twice daily at the bedside until after innumerable washings, a fairly clear bladder-fluid is obtained, which, though, at the next washing is clouding up again. By means of a large-calibered evacuating cystoscope, through the shaft of which the bladder fluid is rapidly exchanged, a brief cystoscopic inspection of the bladder is now feasible (6 days after the patient's entrance into the hospital), which demonstrates a heavily trabeculated and ulcerated bladder-wall, on which the characteristic landmarks of the trigone cannot be differentiated, and a deep and sacculated fundus. An attempt at chromo-cystoscopy fails on account of the rapidity with which the bladder-medium is clouding up. Finally, after many unsuccessful attempts, the left ureter is entered by chance, and the right ureteral opening is found in a similar manner by locating it from its left mate. Both ureters are catheterized to the pelvis. Indigo-carmin and Phloridzin are injected.

*Examination of separated renal secretions:*

RIGHT SIDE.

Very small amount of fairly clear urine (a few c.c. in several hours), no blue. Faint sugar reaction after 1 hour and 45 minutes.

Micros. Many pus-cells, hyaline and granular casts, pus-casts.

LEFT SIDE.

Much larger amount (15 c.c. during the first 15 minutes) of turbid urine. Faint blue after 30 minutes. Fairly strong positive Fehling after 45 minutes.

Many pus-cells, many hyaline and granular casts, a few blood-cells, small round epithelial cells.

For obvious reasons, a second functional and microscopical examination of the separated renal secretions was deemed in-

dispensable. After several unsuccessful attempts it was again possible to enter the right ureter, while the urine of the left kidney was collected through a catheter introduced into the bladder. The ureter catheter was permitted to remain in situ on the right side for 24 hours, during which time several ounces of pure pus were collected. The urine collected from the bladder catheter (which represented the left kidney) was considerably less cloudy than that from the right side. Following are the results of the different tests:

RIGHT SIDE.	LEFT SIDE.
No sugar after phloridzin.	0.6% sugar.
Urea: 0.001.	0.016 urea.
Micros. Pus in abundance, many granular casts.	Many pus and blood cells; less pus than on the right side; small, round epithel. cells; granular casts.

During his stay in the hospital the patient showed marked symptoms of uremia (vomiting, hiccough, drowsiness, etc.). The temperature remained irregular, and was of septic character; the pulse became very feeble and increased gradually in rate. It was evident that the patient was quickly losing ground and would soon be beyond repair.

The second catheterization of the right ureter had furnished the still missing link in the chain of evidence, pointing to the absolute anatomical and functional deficiency of the right kidney. Therefore, the exposure and, possibly, removal of that organ was proposed to the family as a last resort.



<sup>1</sup> Fig. I.

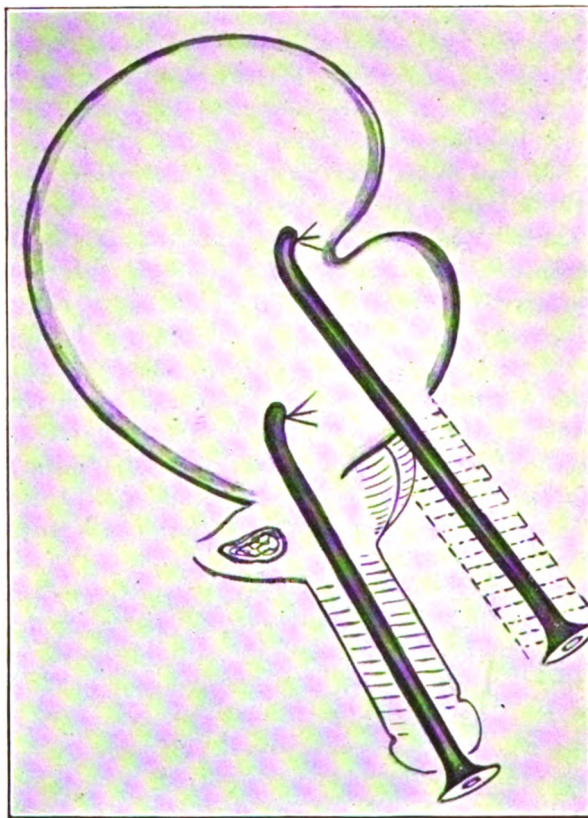
*Operation:* Under chloroform-narcosis the right kidney is exposed, which is found to represent a medium-sized sack, and

which is freed with difficulty from dense adhesions. The kidney, (Fig. 1) when opened from its convex edge, shows at the upper pole an area of about 2 cm. of apparently real kidney tissue, while the rest of the organ consists of pus-cavities of various sizes and one larger sack, representing the distended renal pelvis, ending in the thickened and wide-calibred ureter. The very thin hilus which is contained in an adhesion is ligated with medium-sized chromacized catgut and the kidney removed with a portion of about 15 cm. of the ureter.

*Subsequent history:* The patient's general symptoms did not change materially immediately after the operation, but his uremic symptoms (drowsiness, vomiting, hiccough, etc.), became gradually less intense. The daily urine quantity, which had been about 600 c.c. before, increased daily and reached 2,000 c.c. one week after the operation. At the same time, his general condition was perceptibly better, temperature between normal and 100 F., pulse between 65 and 90 and of better volume; wound healing rapidly; urine very cloudy, and has, at times, the appearance of almost clear pus, especially whenever the retaining catheter cannot be kept in the bladder more than 24 hours. About a month later the patient begins to partly evacuate his bladder spontaneously, so that the retaining catheter can be removed during the day. His general condition is markedly improved; he has increased in weight materially, is bright and cheerful. Urinates about every two hours during the day and twice during the night, but the bladder still contains residual urine, which, upon leaving the hospital, he is advised to remove by catheter twice daily.

At home the patient had, a few weeks later, another of his usual attacks of so-called malarial chills, followed by fever, which when it did not yield to home-remedies (quinine, etc), was recognized by the writer as being caused by urosepsis, due to inadequate drainage of the bladder and poor asepsis of the catheter. The patient is persuaded to re-enter the hospital, where the left renal pelvis is cautiously, but systematically and regularly, lavaged, with the result that the patient, after several weeks of treatment, is able to empty his bladder spontaneously, while the urine looks less turbid and contains, microscopically, less pus. Since that time all general and most of the local untoward symptoms have abated. A cystoscopy performed about 8 months after the operation shows the bladder to be divided into 2 com-

partments, (Fig. 2) which are formed by a fold of the posterior bladder-wall. With the cystoscopic beak directed downwards and kept flush with the sphincter, one looks into a well-defined bas-fond, and when the beak of the instrument is pushed forward and deeper into the bladder, a second sacculated bladder-fundus appears behind the fold of the posterior wall. Marked trabecular bladder, trigone widened, the distance between the two ureters being greatly increased. The catheter enters the ureter on the right side without impediment up to 15 cm. from the ure-



<sup>1</sup> Fig. II.

teral orifice, while it passes the left ureter freely up to the renal pelvis. Examination of the left renal secretion reveals a somewhat cloudy fluid, containing a trace of albumen, many pus-cells, but no casts.

*Comment:* This case represents the type of bilateral Pyelonephritis ending in Pyonephrosis, in which an hematogenous or descending infection on one side was later on followed by a secondary ascending infection of the other kidney. The history of the case does not contain absolutely reliable data upon the source and duration of the primary hematogenous right-sided disease. Most probably the repeated so-called malarial chills were in reality caused by right-sided pyelonephritic foci, while the onset of severe bladder-symptoms mark the beginning infection of the renal pelvis and parenchyma on the left side. The very pronounced pathological changes of the bladder-wall, on the other hand, point to the possibility that the infection of both kidneys was a metastatic one on the basis of a severe cystitis.

The question, whether an operative procedure was indicated, on which side and of what character, could only be logically answered by the functional and microscopical study of both separated renal secretions. It is fair to assert that the success obtained in this case by the surgical procedure was due to the painstaking urological diagnosis. Although at the first successful bilateral ureteral catheterization much clearer urine was obtained from the right than from the left side, it was, nevertheless, evident that the whole burden of renal function was furnished by the left kidney, a presumption which was proven beyond doubt by the second partly successful ureteral catheterization. Upon these findings the removal of the functionally valueless right organ could be undertaken, which was considered preferable to Nephrotomy. A Nephrotomy, in this case, would have left a source of chronic septic infection, which would have increased the chances of additional damage to the second kidney, either by ascending or hematogenous infection. My experience has taught me that a pus-kidney which cannot be drained thoroughly is to be considered as a cause of great danger to the second kidney, and that it should be removed whenever this procedure is permissible by the condition of the other kidney.



## VESICAL CALCULUS WITH MULTIPLE RECURRENCES

By A. HYMAN, M.D., New York City.

**T**HE following is the history of a case presenting multiple recurrences of vesical stone.

The patient's family history is negative for stone, or any other urological condition. J. S., 36 years of age, was sent to me on December 5th, 1910. His past history was as follows: When two years old, he was operated for vesical calculus, a perineal cystotomy was done and a large stone removed. Six months later he was again operated for vesical calculus, another perineal cystotomy being done. The bladder wound closed completely, but from this time on the patient had incontinence of urine, lost all control over his sphincter, and wore a urinal continually.

When 13 years of age, he was operated a third time for calculus, this time by the suprapubic route, and a large stone was removed.

When 17 years of age, the patient was operated for the fourth time. At that time considerable difficulty was experienced at the operation and, after both suprapubic and perineal cystotomy were performed a large calculus was removed. The suprapubic wound closed completely, but a perineal sinus persisted, through which up to present time, the patient passes most of his urine.

For the past year he has been treated for a gonorrheal prostatitis, without any improvement in his symptoms. He complained of severe pain in the perineum radiating down to tip of penis, with marked vesical tenesmus. Gonococci were present in pus massaged from prostate. A few weeks previously he had passed a few small phosphatic calculi through the perineal fistula, without, however, experiencing any relief of his symptoms.

Examination of the patient showed a man in fair general condition. The right kidney was enlarged and slightly tender. The old suprapubic wound was found firmly healed. In the median line of the perineum there was a large sized fistulous opening through which foul smelling ammoniacal urine escaped. The prostate was moderately enlarged, and exceedingly tender to palpation. An attempt was now made to pass an olivary bougie No. 22 Fr. through the urethra. This was interrupted at the bulbous portion, where distinct grating was obtained. The anterior

urethra was then endoscoped, and a large stone was seen lying in a sac which had been formed in the bulbous urethra. An attempt was made to remove the stone with alligator forceps, but this proved unsuccessful.

X-Ray pictures of the genito-urinary tract from the kidney down were taken, and showed a large vesical calculus about the size of a plum, besides the urethral shadow.

Operation, December 15, 1910. Under anesthesia a sound was passed alongside the urethral stone and into the bladder, to act as a guide, since the latter could not be filled with either air or water on account of the fistula. After a suprapubic incision through old scar was made, the bladder could not be located, even with assistance of the sound, both on account of dense adhesions and the deep location of the organ. In trying to locate the bladder the peritoneum was accidentally opened, a complication which was of value, for, with a finger in the peritoneal cavity, the bladder was located, and found to be very much contracted, hugging the stone very closely. Guide sutures were placed in the bladder and peritoneum then sutured. The bladder was opened and a large calculus removed. The placing of a drainage tube in bladder, with packings guarding peritoneum and prevesical space completed the operation. The patient made an uneventful recovery.

The tube in the bladder required daily changing, for the lumen soon became clogged with phosphatic deposits. With the use of dilute hydrochloric acid, urotropin, and by regulation of the diet, the urine improved considerably so that when the patient left the hospital two weeks later the urine was slightly acid.

A few days previous to the patient's discharge from the hospital two urethral calculi were removed through an endoscopic tube under local anesthesia. The patient refused to have an attempt made to close the perineal fistula, as he preferred urination through this opening to urethral incontinence.

The patient presented himself for examination on December 1, 1911. His suprapubic wound is closed—the urethra is patent to a bougie; there are no evidences of stone formation in the bladder. The urine is slightly acid. All the subjective symptoms have disappeared, the prostate is practically normal to palpation and no gonococci can be demonstrated.

## REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman  
and Walter J. Heimann

### ZEITSCHRIFT FUR UROLOGIE

1911, Vol. V., No. 11

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**1. Improvements in the Optical System of Cystoscopes:**

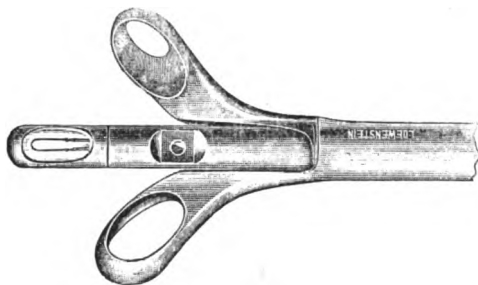
Von Rohr in an historical essay on some of the changes that have been made in the construction of the cystoscopic lens systems, discussed the following themes: 1st. Improvements in the reflecting apparatus; 2nd, in the objective; 3rd, in the inversion system; 4th, in the ocular; and 5th, in the lens setting. In conclusion he adds a chapter on systems for binocular vision. The paper is too technical to be given in brief and must be read in the original.

**2. A Case of Bilateral Duplication of the Ureter and Renal Pelvis.**

The author, after calling attention to the rarity of double renal pelvis and double ureter, gives the history of a case in which there was an infection of one of the pelves of the left kidney. The four ureteral orifices were catheterized and four separate specimens were obtained. Of unusual interest was the finding of a partial unilateral nephritis, as determined by one of the two specimens from the right side, and of a pyelitis involving only one of the two pelves of the left kidney.

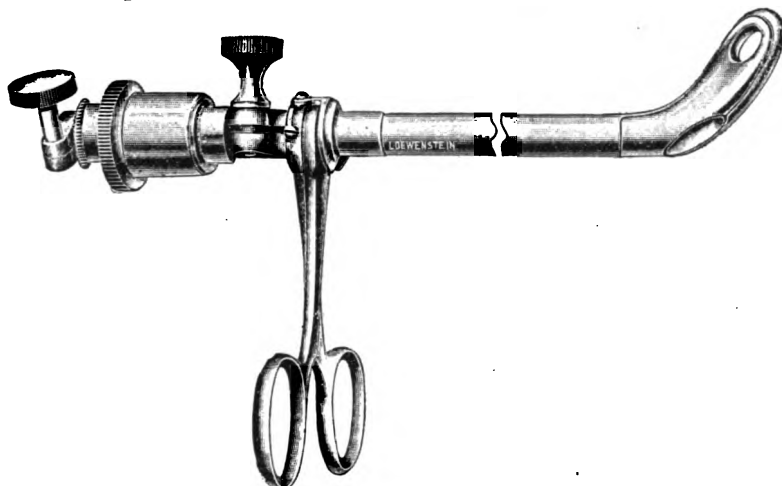
**3. A New Endovesical Cystoscopic Forceps:**

Schlagintweit describes a sharp grasping and pulling forceps



that is a part of his operating cystoscope. It has distinct advantages over the flexible type of forceps, in that its greater size and rigidity make it more serviceable in the removal of larger pieces of vesical tumors. The shape of his instrument is composed of two in-

terlocking tubes that may be rotated on their long axis by means of a scissor-handle (see figure). When the handle is opened, the blades of the forceps (which make the beak of the instrument) are made to separate. A simple observation cystoscope furnished with a terminal electric lamp, and passed through the shaft of the instrument, gives an excellent view and can be so adjusted as to keep both the blades of the forceps and the tumor in the field of vision at the same time.



#### 4. Styptol for Pollutions:

In view of the well-known contracting action of Styptol on the uterine vessels, and keeping in mind the suggestion of König that the drug may have a similar action on the uterus masculinus, Piersig made a trial of styptol for pollutions and obtained excellent results. He cites brief histories of five patients all of whom were markedly improved. Although the author believes that this drug may fail at times, its action is often so striking that it certainly deserves a trial in every case.

[The senior editor has had considerable experience with extract of ergot and styptol in pollutions, and he is convinced of the good results by the combination. His prescription is generally as follows:

Extr. Ergotæ ..... gr. ij  
 Styptol ..... gr. ss  
 Mf. caps. no. i. Tal. dos. no. lx.  
 S. One capsule t. i. d. p. c.

Occasionally he adds a small amount of cinnamon or cardamon to correct any tendency of the other two ingredients to nauseate. The editor has used the above combination for several years, and he believes he has been successful in guarding against the pitfall of *post hoc ergo propter hoc*.—W. J. R.]

## ANNALES DES MALADIES DES ORGANES GENITO-URINAIRES

Vol. XXIX. No. 21, 1911.

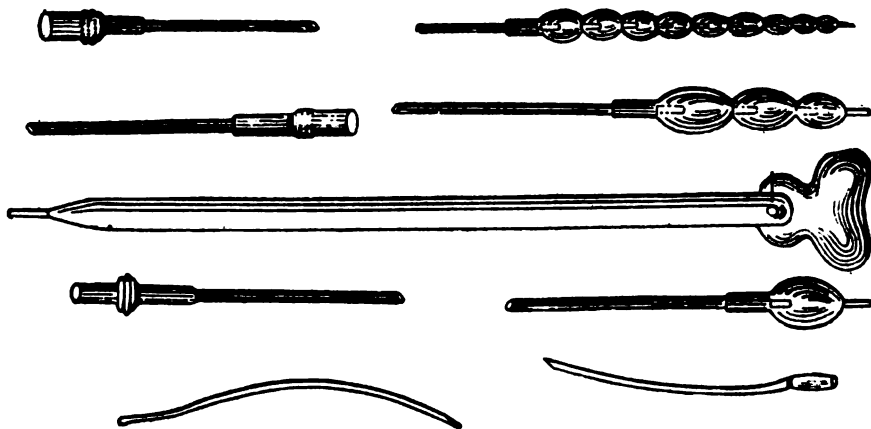
1. New Electrolytic Instruments for the Treatment of Strictures of the Urethra. By Li Virghi Girolano.
2. Surgical Treatment of Acute Medical Nephritis. By G. Worms and A. Hamant.

Vol. XXIX. No. 22, 1911.

3. Tuberculous Stricture of the Urethra. By Georges Constantinesco.
4. Two New Instruments for Transvesical Prostatectomy. By V. Compan.
5. Diagnosis of Ureteral Calculi. By Leopold Casper.
1. **New Electrolytic Treatment of Strictures of the Urethra:**

Girolano describes a new set of metallic instruments that serve to apply electrolysis to strictures of the urethra. Having employed his method in more than 100 cases with excellent results, he is confident of its superiority to simple dilatation.

Dilators may be grouped in three classes:—(1) the segmented dilators of Kollman, Oberländer and Desnos; (2) the various types of elastic and metallic sounds; and (3) instruments that dilate by virtue of the circular application of electrolysis.



From the standpoint of treatment, inflammatory strictures may be considered as falling into two groups: (1) large, soft strictures, most frequently situated in the anterior urethra; and (2) those coarctations which are either hard, filiform, with or without distortion of the canal, those lying in the bulb and the so-called prevesical strictures of the prostatic urethra.

The author's set (see figure) comprises the following: (1) a pliable metallic shaft bearing a metallic olive to which filiform guides may be attached. (2) Conical straight metallic catheters, 22 cm. long, and also furnished with a screw joint for filiforms. (3) Electrodes bearing olives in series of 3 or more.

In the employment of these various electrodes it must be remembered that a filiform guide, passed into the bladder must always precede; that the single olive or the olives in series must be supported on flexible stems so as to conform to the urethra; that the straight catheters are conical for the purposes of gradual dilatation whilst the process of electrolysis is going on; and that each instrument must be selected with due regard to the type of stricture under treatment.

Although the strength of the current must vary owing to difference in individual susceptibility, 10 milliampères is a good average to use. By means of the consecutive application of olives of increasing size exceedingly rapid dilatation may be accomplished. At the first sitting a set of nine olives from No. 8 to No. 16 Fr. may be used. Numbers 12 to 18 Fr. will usually pass at the second séance which should take place after the lapse of 6 or 7 days. After each of the first two treatments an indwelling catheter is allowed to remain for 24 hours in order to conserve the effect of the dilatation.

The conical electrodes are applicable under two conditions: (1) when the olives cause too much pain in spite of the use of local anesthetic; and (2) when by palpation an indurated nodule accompanies the stricture, a lesion that calls for the use of massage while electrolysis is in progress.

Summing up the results obtained in about 100 cases exclusively treated by this method, the author says that no untoward effects were ever observed; that, on the contrary, he has not had occasion to perform internal urethrotomy since the employment of electrolysis except in cases attended with severe vesical infection and when the patient demanded prompt relief. The tendency to recurrence is minimized; in short, the procedure may be regarded as the most efficacious of all our present means of urethral dilatation.

## 2. Surgical Treatment of Acute Medical Nephritis:

The question as to the propriety of treating so-called medical nephritis by surgical means is still a mooted one. Indeed it is often difficult to decide to which category a given case belongs. According to some authors the same pathogenic organisms may in one instance produce a simple nephritis, in another a suppurative pyelonephritis. Clinically, however, the two renal pathological processes may usually be distinguished, the medical nephritis being characterized by edema and cardio-vascular lesions, etc., the surgical nephritis by urinary changes and symptoms.

Castaigne recognizes three types of acute nephritis, a transient, a hyperacute and a prolonged form. The transient variety includes

those cases complicating the infectious diseases and acute intoxications, where there is a febrile albuminuria, indicating the presence of a noxious but a virulent and fugacious substance.

The hyperacute nephritis belongs to the severe acute poisoning (with mercury, cantharides, phosphorus) or attends certain acute diseases (typhoid, pneumonia, scarlatina). Anuria, without edema, and without the usual signs of uremia is often a characteristic condition in this form.

In the prolonged form, we expect to find the large white kidney with the glomerular lesions predominating. All the cardinal symptoms of nephritis are present. The nephritis of the convalescent period of scarlet fever may be put into this class.

To these, the authors add a fourth form characterized by veritable suppuration in the kidney, and considers it as an advanced stage of exudative nephritis.

Certain considerations in renal pathology must guide us in a decision as to the proper viewpoint to be taken on the question of surgical treatment. Thus the bilateral nature of the disease offers a distinct objection to intervention. That the acute congestion and retention of exudative products in the non-yielding fibrous kidney capsule leads to a sort of strangulation of the parenchyma, is an enticing argument in favor of operation. The good effect of surgical treatment in many cases of anuria is a fact strongly supporting the advisability of such a procedure.

Those opposing surgical measures are actuated by the following objections: (1) The relative benignity of many cases and their subsidence with medical treatment; (2) the bilateral nature of the affection; (3) the gravity of operative procedures in the presence of renal disease; and (4) the employment of a general anesthetic. That most of these objections do not obtain in practice is evident to anyone who has had actual experience in this line of work.

As for the indications for surgical intervention the authors believe anuria to be the condition par excellence in which operative measures often give prompt relief. As long as there are no uremic symptoms, a reasonable time may be allowed to elapse, during which medical therapy must be rigidly pushed. If the anuria persists and the slightest evidences of uremia supervene, immediate operation is indicated. In exudative nephritis, if the leucocytic exudate increase, when both uremia and anuria threaten, and when the general condition becomes alarming, operation is advisable.

Various measures have been suggested: decapsulation, nephrectomy, simple nephrotomy and nephrotomy with excision of infected areas. The aim of surgical methods should include the following: copious blood-letting, relief of tension, prolonged drainage and the conservation of renal parenchyma. Decapsulation alone is inferior to incision of the organ since it gives no exposure of the diseased

tissue, it gives us no opportunity to appreciate nature of the lesion and does not permit of drainage. As for nephrectomy this is contra-indicated even in the presence of miliary abscesses, both because these are so often bilateral and because both kidneys are usually diseased. All in all nephrotomy with drainage is the method of choice. In general it is best to operate only on one organ since unilateral intervention exerts a favorable action on both the kidneys.

### 3. Tuberculous Stricture of the Urethra:

The author gives a detailed account of the history of a case of urinary tuberculosis, in which a tuberculous stricture developed in the urethra at the peno-scrotal angle. The patient, a man of 34 years of age, had suffered with urinary symptoms for about 14 years and on admission to the hospital had the usual subjective and objective evidences of a tight stricture, increased frequency of micturition and pain during the act being the most marked symptoms. The absence of any previous attack of gonorrhea and of any traumatism were noteworthy points in the history.

The penis, which was of normal size, did not permit of normal elongation and the glans was excoriated by the constant dribbling of ammoniacal urine. On palpation a hard cord of the diameter of a pen holder could be felt and traced backward from the fossa navicularis towards the peno-scrotal angle, where there was a nodule about the size of a cherry. A similar but smaller cord could be detected traversing the scrotum, perineum and probably extended into the bladder, being evident on rectal examination. This indurated cord represented the sclerosed spongy urethra. The coarctation at the peno-scrotal junction barely allowed a No. 10 Fr. bougie à boule to pass, the narrowing being at least 1.5 cm. long. The testicles and prostate were apparently uninvolved. The injection of guinea pigs with the urine demonstrated the presence of tubercle bacilli.

Because of the intense pain during micturition, and the diminished capacity of the bladder, it was deemed expedient to make a perineal fistula. About 2.5 cm. of the urethra was excised for microscopic examination and the specimens showed ulceration and tuberculous nodules in and around the urethra. Tubercle bacilli were readily demonstrated on the sections.

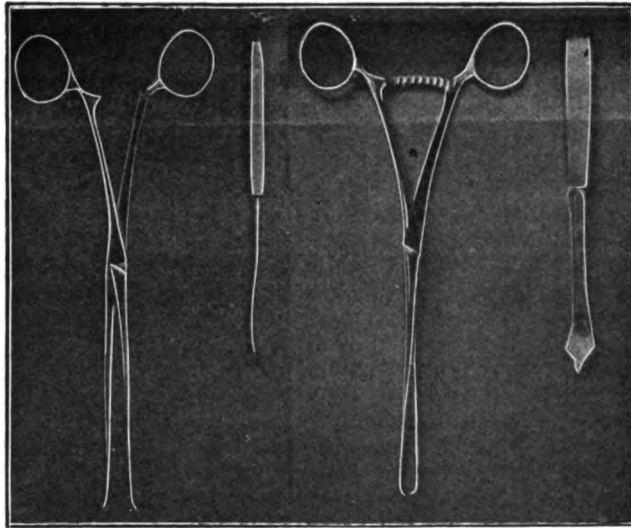
From his review of the literature the author concludes that tuberculous stricture is rare. In only three cases out of 75 was an indurated cord present. Hallé and Motz found the urethra hard and nodular from the base of glans to the bulb, in a boy of 11 years. A similar case is said by Minet to have occurred in a patient 51 years of age, although the clinical data in this case are not absolutely conclusive. Jeanbrau, however, reported a reliable observation, supported by positive pathological findings, in the case of a young man 19 years of age, who had a perineal abscess and whose urethra was indurated so as to be veritably "wooden" from end to end.



The prognosis in these cases is usually bad; urethrotomy is of no avail and dilatation, too, can hardly be of any value unless we are simply dealing with a secondary cicatrix.

#### 4. Two New Instruments for Transvesical Prostatectomy:

The author has devised two special instruments that he considers of value in delivering and removing the prostatic tumor in operating for "hypertrophy" by the suprapubic route. The traction-forceps



(see figure) when opened puts two sharp-hooked arms into action; the second instrument, or curved incisor, has a double cutting edge and is employed both for the initial incision of the mucous membrane and for the dissection of the gland.

After the usual suprapubic incision has been made, the traction forceps is passed into the prostatic urethra and the blades opened sufficiently wide to firmly hook the prostate. Whilst a firm and steady pull is being made with the forceps the mucous membrane is cut with the incisor, and the gland is enucleated with the aid of traction and the cutting of whatever holds it in its bed. Although these instruments are of little use in malignant disease of the prostate, the author believes they facilitate and expedite the removal of the "hypertrophied" gland inasmuch as they enable us to bring the gland and even the neck of the bladder into full view.

[The word "hypertrophied" appears in quotation marks whenever it is used in the JOURNAL to denote hypertrophied prostate, our object being to call attention to the fact that according to the accepted

view to-day, the so-called "hypertrophy" is but an adenoma of the prostate.—EDITORS.]

#### 5. Diagnosis of Ureteral Calculi:

Caspar cites some of the usual and well-known difficulties that may arise in the diagnosis of ureteral calculus and gives the history of a case in which the data obtainable from the patient and from cystoscopic examination were insufficient. Radiography supplemented by the corroborative shadow of an X-ray catheter, cleared up the situation, a calculus being discovered.

Since accidental superimposition of catheter and stone shadows may occur on the X-ray, even though the bodies are lying in different planes, it is always advisable to point the X-ray tube in a different direction and make a second exposure. If no change in the relative position of the two shadows occurs, we have conclusive evidence that the suspected stone shadow emanates from the ureter.

### MISCELLANEOUS ABSTRACTS

#### Direct Cultivation of *Treponema Pallidum*.

Noguchi described, in a previous communication, a method for the cultivation of *Treponema pallidum* from the testicular lesions of rabbits inoculated with human syphilitic material containing that organism. In his present work, the direct cultivation of the treponema from the syphilitic lesions in man, was accomplished. In working with the organisms from the testicular lesions, it was found advantageous to employ first a fluid medium, and later to substitute a solid medium. Although this is a satisfactory method for the testicular lesions which are nearly free from contaminating bacteria, it is not applicable for the highly contaminated primary lesions in human cases of syphilis.

Two conditions are all-important in the working out of the method of direct cultivation: first, the maintenance of strict anerobiosis; and second, the property possessed by the pallida of migrating in the solid medium in which they are multiplying. To meet these conditions, Noguchi employed a high cylindrical layer of a solid medium consisting of two parts of 2 per cent. slightly alkaline agar and one part of ascitic or hydrocele fluid, at the bottom of which has been placed a fragment of sterile tissue, such as rabbit kidney or testicle. He concludes that the tissue acts chiefly by removing the traces of oxygen that exist in the lower levels of the medium, and probably also by providing a special form of nutriment. The solid medium, when inoculated with a fluid containing pallida and bacteria, seems to keep the latter fixed to the inoculation stab while permitting the pallida to migrate to a distance where they may often be found in a pure or nearly pure state.

Comparisons were made between the agar medium described and

the gelatinized horse serum employed by Schereschewsky, in favor of the former. The disadvantage of the gelatinized serum arises from the fact that the bacteria rapidly liquify it, and acids render it more permeable for bacteria. Hence it is very difficult to separate the spirochete from the contaminating bacteria.

In the author's direct method of isolating the treponema fifteen cubic centimeters of the medium described are placed into test-tubes measuring two by twenty centimeters. At the bottom is placed a fragment of sterile tissue. While rabbit kidney or testicle is preferable, human placenta, sheep testicle, or other sterile organ will suffice. The medium is prepared in the tubes, after the addition of the tissue, by mixing two parts of the melted agar at 50° C. and one part of ascitic or hydrocele fluid. After solidification, a layer of sterile paraffin oil three centimeters deep is added to prevent evaporation of the medium. A considerable number of tubes should be prepared at a time, and they should be incubated for a few days prior to inoculation, to determine sterility.

The material to be cultivated is obtained from lesions rich in the pallidum, such as chancre, condyloma, or skin papule, from which are snipped off, after cleaning with sterile salt solution, suitable fragments. These are immersed immediately into sterile salt solution containing in addition 1 per cent. sodium citrate. The fragment of tissue, which should be carefully preserved against drying, is then cut into small bits which are used as follows: one bit is emulsified in a mortar with the citrate solution; the others are inserted as such into tubes of culture medium, provided the emulsion shows, under the dark-field microscope, the presence of the pallidum.

Each of the half dozen bits of pallidum-containing tissue is inserted into a tube of the ascitic-fluid-tissue-agar by being forced to the bottom of a thin, blunt glass rod or heavy platinum loop, and into the same tube several drops of the emulsion are introduced by a capillary pipette also inserted deeply into the medium. Care is taken to avoid tearing the medium, and about six tubes are inoculated from each specimen of tissue. The tubes should be incubated at 37° C. constantly for two to three weeks before examination.

From his experiments the author concludes as follows:

"A method for the direct cultivation of *Treponema pallidum* from human syphilitic lesions, by the employment of a solid medium, has been described. By means of it, three of the four strains worked with were successfully cultivated.

"The several pure cultures agree in morphological and cultural characters, grow only in the presence of sterile tissue under anerobic conditions, and do not produce putrefactive odors. The morphology is typical under optimum cultural conditions; it becomes atypical when the conditions are unfavorable.

"In cultures, *Treponema pallidum* multiplies by longitudinal divi-

sion. The process is usually symmetrical but occasionally appears to be asymmetrical.

"Inoculation of the pure cultures into the skin of two species of lower monkeys was followed by the production of lesions resembling the primary syphilitic lesion occurring in man and those caused in the monkey by inoculation of spirochete-containing serum from human sources.

"During the course of the positive inoculation in the monkey, the blood develops the property of giving a positive Wassermann reaction. Thus the relation of *Treponema pallidum* to this reaction is supported, and the identity of the cultivated strains with the species found in human syphilitic lesions established."—H. NOGUCHI, *Jour. of Exper. Med.*, Jan. 1, 1912.

#### Surgical Pathology of the Prostate.

In a series of 468 cases of operations on the prostate L. B. Wilson and B. F. McGrath (*Jour. A. M. A.*, Nov. 11, 1911), have re-examined the specimens and reviewed the data from all cases of operations on the prostate at the Mayo clinic from October 28, 1904, to July 1, 1911, a series comprising 468 cases.

They give in detail the development and anatomy of the prostate. Quoting Tandler and Zuckerkandl they agree that hypertrophy of this gland always begins in the middle lobe, that total hypertrophy never exists, and that the surgical capsule is composed of prostatic tissue. Physiologically the prostate acts as a secreting gland, the secretion forming an important element of the spermatic fluid. The arrangement of the smooth muscle of the prostate, longitudinally about the glandular tubules and circularly about the alveoli, is such that their contraction empties the gland of its accumulated secretion. The mechanism of the bladder closure and the emptying of the urine may be properly ascribed to the sphincters of the prostate.

It is probable that the numerous ganglia situated in the prostate and bladder have an important function in the closure of the latter and in urinary discharge and that these must be looked on as center.

In discussing the pathology of the prostate they consider infections rare, excepting as a complication of gonorrhea. In their series of 468 cases, 7 were tuberculous and hematogenous infections and confined to the lateral lobes. Gonorrheal catarrh is undoubtedly the most frequent form of acute prostatic infection, and it is very likely that acute posterior urethritis cannot run its course without involving the prostate. Follicular prostatitis is developed as a rule from gonorrheal catarrh. There is stagnation of the secretion, due to obstruction of the openings, and the process leads to the formation of abscesses. Parenchymatous prostatitis involves the entire gland; the organ is greatly enlarged, feels hard and tense. Chronic prostatitis is commonly caused by gonorrhea.

There were 387 cases of hyperthrophy, the remainder being cases

of tuberculosis or neoplasm. The ages of the patients were as follows:

50 to 60 years of age	65 (17 per cent.)
60 to 70 " " "	194 (50 " )
70 to 80 " " "	116 (30 " )
80 to 90 " " "	12 ( 3 " )

All the patients may fairly be assumed to have passed the most active period of sexual life. In 300 cases there was an increase of both stroma and parenchyma, round-celled infiltration occurring in 266 specimens.

In regard to the etiology of prostatic hypertrophy, no hypothesis has yet been advanced that adequately harmonizes with the facts. The following steps are supposed to occur in the development of the disease:

(1) There is an initial hyperplasia of the parenchyma marked by high cylindrical epithelium with swollen nuclei. These epithelial cells are actively secreting, as shown in the early stages by relatively large amounts of secretion.

(2) Apparently the second stage is that of retention within the tubules and alveoli of the secretion.

(3) The third stage is parenchymatous degeneration marked by atrophy or ex-foliation of the epithelium.

(4) Early in the development of parenchymatous hyperplasia there begins a muscular overgrowth which represents an attempt on the part of Nature to expel from the gland the retained secretion.

(5) The overgrowth of fibrous connective tissue in the hypertrophied prostate in their cases was the most constant factor. In the normal prostate the muscular and fibrous connective tissues are so blended that it is readily conceivable that with overgrowth and overfunction the smooth muscle fiber may, by steps of gradual transition, change into fibrous connective tissue as a terminal stage in the life history of the muscle cell.

Of 73 cases of malignancy, in their series of cases,

1 was between 40 and 50 years of age
9 (12 per cent.) were between 50 and 60 years of age
29 (40 per cent.) were between 60 and 70 years of age
30 (41 per cent.) were between 70 and 80 years of age

The middle period is relatively free from malignancy in this organ. In 87 per cent. there was evidence of hyperplasia. A transition from hyperplasia to undoubted carcinoma was observed in many cases.

Many carcinomas of the prostate show a marked tendency to seize on neighboring structures, particularly the floor of the bladder seminal vesicles and rectum. The lymph glands in the region of the

prostate are the first to become infiltrated with cancer. After that the retro-perineal and inguinal glands become involved. Metastases in distant organs are common.

As prostatic sarcomata develop they involve the bladder wall and neighboring structures. Metastases in other distant organs are uncommon. The authors feel that it is a regrettable fact that many otherwise well-informed physicians seem to be almost unaware of the existence of the prostate, and that a rectal examination should be a routine with all males presenting themselves for diagnosis of obscure abdominal as well as genito-urinary diseases.

#### The Merits of Suprapubic Prostatectomy:

J. B. Squier (*Surg. Gyn. and Obstet.*, 1911, XIII, 331) takes up the surgical anatomy of the prostate, defines the prostate as composed of groups of glands, the disposition of the glands being responsible for the irregularities of hypertrophy. If the sub-cervical group is enlarged, a bar at the neck results; if the prespermatic groups a median outgrowth. The configuration of these outgrowths is largely determined by the musculature of the bladder particularly by prominent longitudinal bundles of muscle fiber which run from the ureters to the internal vesical meatus. With these anatomical relations in mind, he proceeds to a description of suprapubic prostatectomy which, in his experience, has most clearly approximated the ideal. The operative technique as carried out by Squier is the following: The patient is prepared, the bladder irrigated and filled before the anesthesia is commenced. At the moment of relaxation, the abdominal incision is made and the bladder exposed. The bladder is opened by an incision large enough to admit two or three fingers, high up on the fundus and close to the peritoneal attachment, to facilitate an early closure of the fistula. The next step of the operation, enucleation of the prostate, is an intraurethral removal, in contradistinction to the intravesical removal *en masse* by Freyer. The index finger is inserted into the internal meatus and breaks through the roof of the prostatic urethra. Access is at once given to the proper line of cleavage between the lobes, since at this point they lie in close apposition, being separated only by the capsule. The enucleation is begun by pushing the finger upward and forward, freeing the apex of the lobe from its attachment to the urethra and triangular ligament. It is then swept around the surface and the lobe is hooked back into the bladder with its apex pointing upward; then a little separation from the bladder mucous membrane completes its removal. A similar procedure is repeated on the other side and the enucleation is complete. During the enucleation the prostate is steadied by the fingers of an assistant in the rectum and the anesthetic is stopped as the prostate is delivered. The operation is completed by suturing a drainage tube in the upper angle of the bladder wound, closing the bladder and abdominal wound. Such an operation takes but a few

minutes and the amount of anesthesia required is slight. A prostate without median outgrowth can be removed by this method, with practically no damage to the floor of the prostatic urethra. In cases where a median outgrowth exists, a part of the floor of the prostatic urethra (posterior to the colliculus), will come away with the prostate, but this is of no great moment. Integrity of the prostatic urethra (with the colliculus and the openings of the ejaculatory ducts preserved) is important, for lesions in this region may lead to sterility. By this method Squier is able to remove the entire gland, obtains relief of obstruction of urination, re-establishes urinary control and preserves the integrity of the ejaculatory ducts, in nearly every case. As regards the sequelæ of the operation, he has found that urinary fistula, epididymitis and urinary incontinence are less likely to develop. The only perineal method which is to be considered in the choice of an operation is that of Young. The author believes the suprapubic to be simpler, quicker and more complete. Thorough preliminary preparation of the patient for the operation, the diagnosis of renal insufficiency, a minimum amount of anesthesia, and such rapidity of operation as is in keeping with careful work, are the essentials in prostatectomy.

#### Results Following Perineal Prostatectomy.

Parker Syms (*Surg. Gyn. Obstet.*, 1911, XIII, 277), discusses the various methods of prostatectomy and referring to the perineal, says that outside of the early deaths his results have been satisfactory, with very few exceptions. The vast majority of cases have been cured, i.e., they have regained or retained their full bladder function, being able to hold their urine and to empty their bladders, not requiring the use of the catheter; and, that they are relieved of the distressing symptoms which accompany prostatic obstruction, such as frequency, pain, hemorrhage, cystitis, pyelitis, pyuria and the auto-intoxication due to kidney insufficiency.

#### Treatment of Tumors of the Bladder with Radium:

R. Paschkis reports (*Wiener Klin. Woch.*, Nov. 9, 1911), the history of a patient admitted to the hospital in July, 1909, suffering from a large sarcoma of the prostate which had ulcerated into the bladder. Suprapubic cystotomy was done and the portion of the growth removed proved to be a spindle-celled sarcoma. Radium was then applied through the suprapubic fistula. Twenty-one treatments of twenty minutes' duration were given at intervals of two weeks. In June, 1909, the fistula was allowed to close. The patient was operated upon one year later for vesical calculus, and there were no evidences of any recurrence of the tumor.

Five tumors of the bladder, four of which were carcinomatous, were since treated with radium. One of the cases showed improvement of symptoms, the others were uninfluenced. The author recom-

mends the radium treatment in the following conditions:—inoperable malignant tumors of the bladder and prostate; where a palliative operation alone has been done; and in recurrent papilloma or papillomatosis of the bladder. The treatment should be carried out through a bladder fistula. Where this is not possible the author employs a special cystoscope with a removable telescope, the capsule of radium being attached to the end of the sheath.

#### **Azoöspemia and Syphilis.**

Oscar Scheuer (*Deutsche Med. Woch.*, Oct. 26, 1911), does not think that the spermatogenic cells are destroyed by the toxins of syphilis. There is usually a pathological process, such as a gumma, which may be so small as to escape close observation, and palpation. The author considers the azoöspemia to be the result of an obliterative, and not of an atrophic process. He cites the case of a patient who had lues for two years, and who showed azoöspemia. Physical examination of the genito-urinary organs was negative; aspiration of the testis showed normal motionless spermatozoa, suggesting the presence of an obliterative process. After treatment with mercury and iodides the spermatozoa reappeared in the semen. Azoöspemia is rare in syphilis; the author examined twenty syphilitics for this condition but they were all negative.

#### **Topography of the Ureter as Determined by the Shadowgraph Catheter:**

L. E. Schmidt and H. L. Kretschmer (*Surg. Gyn. Obstet.*, 1911, xiii, 287), after describing in detail the findings in a series of cases in which the outline of the ureters was shown by the X-rays after catheters armed with fused wire had been passed, come to the following conclusions:

1. When judging a skiagram, it is impossible, on account of the great variability of the course of the ureter, to state positively whether or not a given shadow is in the course of the ureter, unless the X-ray picture is taken with a shadowgraph catheter in the ureter.
2. Examination with fuse wire catheters, employed in this series of cases, is superior to other methods for determining the topography of the ureter throughout its entire course.
3. The atypical courses of the ureter, as shown, emphasize the importance of bearing such anomalies in mind, particularly during any operative procedures on the ureter or organs in close proximity to it.
4. This may also explain (at least in part) the ease with which the ureter is injured during operations on neighboring organs.

#### **Renal Decapsulation in Eclampsia:**

H. Ehrenfest (*Surg. Gyn. Obstet.*, 1911, XIII, 296), after carrying out a series of experiments on dogs, draws the following conclusions:



1. The immediate effect of decapsulation is a temporary suppression of secretory function in the operated kidney, and a distinct reflectory retardation of diuresis also in the other kidney, at times probably amounting to a complete anuria. This reflectory effect is also exerted on a kidney decapsulated 48 hours previously, but possibly to a smaller degree.

2. From 24 to 48 hours after the operation a decapsulated kidney shows approximately the same secretory activity as the non-decapsulated kidney of the same animal.

3. Between 24 and 48 hours after decapsulation the diuretic effect of an intravenous saline transfusion or of an artificial acute rise of blood pressure is identical in the decapsulated and non-decapsulated kidney of the same animal.

4. In an apparently healthy dog a kidney, decapsulated for more than 24 hours, does not show any noticeable difference from the other kidney in regard to its secretory function under normal or artificial conditions.

#### Results of Prostatectomy.

R. Proust (*Trans. II. Internat. Urol. Congress*, London, July, 1911) calls attention to certain recently established anatomical data on so-called "hypertrophy of the prostate," emphasizing the fact that the researches of anatomists show the lesion to be an *adenoma* of the submucous, juxta cervical glands. He believes that the post-functional results and the permanency of cure depend on the complete enucleation of the adenoma.

Impotence is one of the most frequent sequelæ of prostatectomy, and excepting Young's results, it seems to be a very common consequence of the perineal operation. Rafin thinks this complication does not occur in young and well-preserved patients. Of 75 cases operated on, 6 retained their potency, 22 lost it, and the rest of the cases were not followed. Of the 52 cases reported by Albarran as having erections prior to operation, this was preserved after the operation in 12; 16 had diminished potency, and 24 become impotent. Castano, Legueu and Tuffier consider impotence almost certain after perineal prostatectomy. According to Albarran the loss of this power may be looked upon as the result of the destruction of an erectogenous zone at the point where the ejaculatory ducts join; or simply a lesion of the nervous centripetal channels of the reflex paths of erection. In suprapubic prostatectomy the ejaculatory ducts and the vas are preserved more often than in the perineal operation. According to Dominicus, impotence is due to the destruction of the gland which he considers contains the active chemical agent, determining sexual impulses.

Orchitis developed in from 10 to 30 per cent. of the cases operated by the perineal route; but only in 1 per cent. after suprapubic operation. In a compilation of 2838 prostatectomies, Desnos found

the two chief complications to be incontinence of urine and formation of fistulæ. Permanent incontinence is rare, and is mainly due to a direct lesion of the membranous urethra; incontinence following suprapubic operations is not as frequent as that following perineal prostatectomy. Still it is not exceptional, for it occurred 11 times in 1578 suprapubic prostatectomies.

There are two varieties of fistulæ which may complicate perineal prostatectomy, rectal and urethral. The rectal fistulæ are due to injury of the rectal wall, which, in the majority of cases, takes place at the time of operation. Some fistulæ have been caused by pressure necrosis from drainage tubes. The recto-urethral fistulæ often takes months to heal, but permanent urethral perineal fistulæ are infrequent.

The percentages of complications following prostatectomy, fistula, incontinence, and stricture, is low enough to have but little influence on the value of ultimate results, all the more so, since the majority of these complications are temporary, or yield readily to treatment. Stricture formation occurred but 8 times in 642 cases (Freyer). In another series cited by the author it occurred 6 times in 292 cases. The result of perineal prostatectomy in cases of chronic complete retention and recent complete retention are good, but in cases with chronic incomplete retention are very often unsatisfactory. Suprapubic prostatectomy gives better results for all varieties of retention, and is regarded by the author as being on the whole superior to the perineal operation.

#### Value of the Wassermann Reaction and of Salvarsan:

J. Geraghty and Keidel (*Jour. A. M. A.*, LVII, 1911, No. 21), made observations on 378 cases examined by the Wassermann test at the Genito-Urinary Clinic of the Johns Hopkins Hospital. The Wassermann technic was followed except in the preparation of the antigen which was made by the Noguchi method. Fifty of the cases examined were definitely non-syphilitic and in every case the reaction was negative. There were sixty-four cases of undoubted syphilis with secondary manifestations and of these 91.4 per cent. gave a positive reaction. Of twenty-one cases with undoubted tertiary manifestation 62 per cent. were positive, four cases being doubtful. In all but three cases courses of anti-syphilitic treatment had been received.

In twenty-three patients with early primary lesions and demonstrable *Spirochetæ pallidæ* 12 or 52.2 per cent. were positive and one case was doubtful. The records show a steady increase in the number of positive reports, from 27 per cent. in the first week to 64 per cent. in the fourth week after which the number of cases rapidly falls off and the results are irregular.

Keidel concludes that a positive Wassermann test is for practical purposes conclusive evidence of syphilis and difficulty arises usually in the correct interpretation of the negative results.

Regarding the value of Salvarsan, Geraghty and Keidel report seventy cases which came under their care in the Genito-Urinary Clinic of the Johns Hopkins Hospital and in private practice. Except for the first four cases, all injections were made intravenously, the intra-muscular injection having been abandoned because of the pain following it.

Wassermann tests were made frequently. The patients treated in the primary stage yielded best to the treatment. After one dose the sore healed promptly and no further manifestations of the disease have since appeared (within periods of 2 to 5 months).

From their experience Keidel and Geraghty are convinced that Salvarsan is an important addition to the therapeutics of syphilis. In every case in which visible lesions were present, improvement took place. In all cases refractory to mercury, the response was prompt. They believe that one injection of Salvarsan will effect a complete cure in some cases; that it is just as valuable as a long course of mercury and iodides; that it saves the patient from the damage done by the leucic toxin during the period necessary for mercurial treatment; that it should be given in every case of syphilis unless some contra-indication exist, but also that it should be followed by a course of mercurial treatment.

#### Treatment of Carcinoma of the Prostate:

H. L. Posner (*Berlin. Klin. Woch.*, October 30, 1911): Recent reports teach us that malignant tumors of the prostate are not at all uncommon; thus Albarran gives a percentage of 14 carcinomata in his series, Young having found 20 per cent. and Mouillin 25 per cent. This change in our notion of the incidence of carcinoma of the prostate is due to the more careful histological studies made of late years. It is of interest to note the large amount of lipid substance in the carcinoma cells. Just what significance can be attached to the overproduction of lipid secretion and whether its presence is in any way related to the absence of cachexia in many cases of prostatic carcinoma, are points worthy of investigation.

Since there is no symptom complex diagnostic of carcinoma of the prostate and since cystoscopic examination furnishes no reliable data except where intravesical ulceration has taken place, the differential diagnosis between this condition and "hypertrophy" is usually difficult. The most reliable diagnostic sign is the peculiar consistency of the malignant prostate, there being at times a diffuse hardness or this together with distinctly palpable hard nodules. Whenever we are in doubt, an exploratory perineal incision should be done and a piece should be removed for microscopic examination.

The perineal method is the operation of choice, but this should be reserved for the favorable cases because of the high mortality. Radical intervention necessitates resection of the floor of the bladder,

together with the seminal vesicles, ejaculatory ducts and a part of the vasa deferentia. The lateral incision of Wilms is recommended.

**Infection of the Urinary Tract with the Colon Bacillus:**

C. Frank (*Berlin' Klin. Woch.*, Oct. 30, 1911): The portal of entry of the colon bacillus into the urinary tract is often doubtful except in those cases in which instruments have been passed. Frank has shown by injecting the lymphatic vessels of the large intestine, that the lymphatics of the ascending colon communicate with those of the right kidney and lumbar nodes, whilst those of the descending colon pass over the capsule of the left kidney. It has been demonstrated that the colon bacillus finds its way into the mesenteric lymph nodes of artificially constipated animals and that the bacilli may pass from the lymph glands into the circulation. The preponderating frequency of pyelitis of the right kidney is well in accord with the above statements.

**Early Diagnosis of Tuberculosis by Animal Inoculation.**

R. Oppenheimer (*Münch. Klin. Woch.*, Oct. 10, 1911), injects the suspected fluid (which was urine in his series) intrahepatically, an easy procedure, since the liver of the guinea pig occupies a large part of the abdominal cavity. The urinary sediment is collected and mixed with 6 ccm. of the patient's urine. The liver is injected in three places, two injections being given under the sternum and one in the right mamillary line. If the urine contains tubercle bacilli, miliary tubercles of the liver and spleen appear within 16 days in the majority of the cases, and in virulent cases within 5 days. The tubercles appear as small yellowish-white spots that do not project above the surface of the liver. Tubercle bacilli were found in the sections of but half of the cases. That the lesions were tuberculous, however, was demonstrated by injecting the suspicious tissue into other animals in whom similar lesions were then produced.

**Pyelitis of Pregnancy:**

In a comprehensive review of the literature on pyelitis of pregnancy, E. Venus (*Centralbl. f.d. Grenzgeb d. Med-u. Chir.*, Vol. XIV, Nos. 10, 11, 12, Aug., 1911) considers the etiology, symptomatology, diagnosis, prognosis and therapy of this condition. As regards the etiology, the following three questions present themselves: 1. Is the infection ascending, hematogenous or lymphogenous? 2. What factors contribute to the production of the infection? 3. What bacteria are responsible?

The presence of bacteria alone is not sufficient to cause pyelitis, for in bacteriuria there is frequently an absence of all signs of infection of the renal pelvis. Albeck believes that in a certain number of cases, bacteriuria existed before pregnancy. In an investigation of the presence of bacteria in the ureteral and vesical urine dur-

ing the early months of pregnancy, the same author showed that the bacterial content was confined to the bladder in most of the cases, an observation that speaks in favor of the ascending theory. Further systematic studies demonstrated that the bacteriuria of the early months of gravidity often becomes pyuria later on. These facts are interpreted by Albeck to be indicative of the correctness of the view, that any interference with the urinary flow through the ureters by pressure or what not, may convert a condition of bacteriuria into bacteriuria with pyuria. He further believes that the bladder is first affected, the deficient closure of the sphincter during pregnancy favoring the entrance of pathogenic organisms; and that the process ascends later by way of the ureters. Although simple bacteriuria results in the bladder, there being no inflammatory process at first, the urinary retention in the ureters due to the pressure of the gravid ureters soon leads to pyelitis.

Of interest in this connection is the finding of dilatation of the ureters in pregnant women, and Ontz asserts that this dilatation is certainly favored, on the right side at least, by anatomical peculiarities.

From a consideration of the views of many authors on the causation of pyelitis gravidarum, Venus finds that there is only one point concerning which most writers are in accord; namely, that the dilatation of the ureter with retention plays an important rôle. Many facts, however, cast doubt on the importance of pressure alone in the etiology; thus pyelitis may occur very early in pregnancy, and, furthermore, large uterine tumors are but rarely associated with the disease in question.

As for the mode of infection, both the ascending and the haematogenous theories must be considered, the former routes obtaining in the majority of cases. The frequency of an associated and probably primary cystitis and the relatively greater occurrence of cystitis in pregnancy are facts that favor the validity of the ascending hypothesis. The experiments of Baureisen, who demonstrated that the vesical infection may be transmitted upward through the lymphatic channels of the ureters, furnish still further support of this view.

In discussing the symptomatology and course, the author follows the classification of Mirabeau, who divides the cases into four groups: (1) Gonorrheal infection; (2) purulent infection; (3) *b. coli* infection; and (4) tuberculous infection.

The invasion of the renal pelvis by gonococci during pregnancy is facilitated by the diminished acidity of the urine. The incomplete evacuation of the bladder, due to the hyperemic and swollen condition of the mucous membranes, is responsible for the change to a neutral or even alkaline reaction. In the 7th, 8th, 10th week, the vesical symptoms usually appear, the urine becoming cloudy, containing small numbers of pus cells, sometimes with demonstrable gonococci. After

an interval, the symptoms referable to the renal pelvis begin acutely with high temperature and lumbar pain.

In the cases of pyogenic infection, we are justified in attributing the infection to the use of a catheter in many instances. The sudden advent of pain localized in the lumbar region, followed in two or three days by the voiding of purulent urine, is characteristic for this group of patients.

Where the colon bacillus produces the infection, we are apt to see the unexpected onset of high temperature, disturbance of the general condition, and pain in the right renal region, in pregnant women whose first four or five months have been uneventful. The urine may be clear at first, becoming cloudy after 2 or 3 days, and then containing numerous colon bacilli and leucocytes. Cystoscopic examination reveals no evidence of an inflammatory process of the bladder.

It is well known that tuberculous lesions are activated by pregnancy, and this is particularly true of the urinary tract. For not infrequently, in the early months, urinary symptoms, such as increased frequency of micturition at night, occur as premonitory signs. Later, after the fourth month, the advent of lumbar pain and of purulent urine, and the recognition of a tender ureter, of vesical ulcerations, and of a diseased ureteral orifice, are facts that disclose the existence of a tuberculous process.

Stoeckel recognizes three groups of *pyelitis gravidarum*:—(1) mild cases, without urinary infection (hydroureter); (2) cases of moderate severity with marked urinary back-pressure (colon infection, bacteriuria, pyuria, pyo-ureter, pyelitis); and (3) severe cases, with suppurative infection of the kidney (pyonephrosis).

The diagnosis is usually easy, for the sudden occurrence of chills, fever, lumbar pain, and alterations in the urine are characteristic. Where urinary symptoms are absent, the possibility of appendicitis, cholelithiasis, cholecystitis, and diseased adnexa must be considered, and cystoscopic examination alone may determine the diagnosis.

The prognosis must not be regarded as good for the following reasons:—(1) Neither the pyuria nor the bacteriuria may definitely disappear; (2) the pyelitis is very likely to recur; (3) the parenchyma of the kidney may become affected later; and (4) the life of the fetus may be jeopardized by reason of the necessity of inducing premature labor, because of the possibility of spontaneous miscarriage and by the effect of the disease itself.

As regards the therapy, three varieties may be employed:—(1) Conservative treatment; (2) interruption of the pregnancy, and (3) operative methods. Many authors recommend change of posture, the patient to lie on the well side, hot fomentations, diuretics, milk diet and urinary antiseptics. Even in severe cases with chills and high

fever, a spontaneous cure seems to result in many cases on such a conservative procedure.

#### Diagnosis of Severe Tubercular Affections of the Urinary Tract.

B. Cholzoff (*Beiträge zur Klin. Chir.*, Nov. 1911): There are many cases of unilateral renal tuberculosis in which cystoscopy and ureteral catheterization cannot be performed on account of complications such as tubercular stricture of the urethra, contracted bladder, ulceration of the ureteral orifices, and stricture of the ureters. Such cases were formerly considered inoperable because localization of the primary forces was impossible.

The author describes the various means of procedure in such cases.

(1) The segregator is an instrument which is of especial service in cases where the ureteral orifices cannot be seen; or, where strictures or other pathological conditions of the ureters exist, making catheterization impossible; and also in contracted bladders in which the cystoscope cannot be applied. The findings obtained by this method can only be of value when the separated specimens of urine differ considerably. One must rely mainly on the quantity of urine secreted by each side, the specific gravity, and especially the functional tests.

(2) Catheterization of the ureters, after suprapubic cystotomy. Where the separator cannot be used the following method is advised: The bladder is opened suprapubically and a urethroscope passed *per urethram* into the bladder. The urethral catheters are then passed through the urethroscope into the bladder and guided into the ureters from above. If but one ureter can be catheterized, a drainage tube should be placed in the bladder to obtain the urine from the other kidney. This latter procedure, although not certain, answers practical purposes. If a general anesthetic is used then the catheters should be left in place and the collection of urine should not be begun till six or seven hours later, to avoid the effects of the anesthetic on the kidney secretion.

(3) Bilateral exposure of the kidneys by the lumbar route as advocated by Küster and Rovsing is only to be used as a last resort. when the above described procedures fail. The supposed healthy kidney is first exposed, decapsulated and the ureter palpated. The patient is then turned over and the diseased kidney removed. This method is by no means positive, for an early tuberculosis may escape detection; still, if inspection and palpation are negative the kidney cannot be much affected.

(4) Exclusion of one kidney. Some surgeons have used this method in preference to bilateral exposure of the kidneys. The suspected kidney is exposed and the ureter ligated. A catheter is placed in the bladder and the urine from the other kidney obtained for examination. Indigo-carmin and phloridzin are injected at the

same time for functional tests. Some surgeons do all this on the operating table, others leave the ligature in place for a few days and collect all the urine for examination. The author considers exclusion of the kidney a very unreliable procedure especially when done at one sitting. Since general anesthesia must be used the results may be vitiated by the toxic effects of the anesthetic on the renal secretion. The author considers bilateral exposure of the kidneys more satisfactory.

(5) Chromocystoscopy is of great value in cases permitting cystoscopy. The time of appearance of the blue color, the intensity of the color, and force of the stream should all be taken into consideration, and the points obtained should act as a guide for bilateral exposure of the kidneys.

In order of importance the author classifies the various procedures as follows: (1) separators; (2) chromocystoscopy; (3) cystotomy with catheterization of the ureters; (4) bilateral exposure of the ureters and (5) exclusion of a kidney.

#### Urethroscopic Findings in Spermatorrhea and Prostatorrhea.

Oscar Scheuer (*Med. Klinik*, Nov. 5, 1911), describes the urethroscopic pictures obtained with the Goldschmidt urethroscope, in cases of defecation and micturition spermatorrhea, due to masturbation, coitus interruptus, and gonorrhea. In cases of spermatorrhea with *ejaculatio precox*, the openings of the ejaculatory ducts were found gaping. In three cases following gonorrhea the patulous ejaculatory ducts were opened into a large fissure in the colliculus. The same pathological condition was noted in cases giving a history of excessive coitus interruptus, or masturbation. The gaping condition of the orifices of the ejaculatory ducts in cases following gonorrhea is due to an infiltrative process in the neighborhood of the ducts, or to an involvement of the walls of the ducts that gives them rigidity. The indurated patulous ducts fail to close the visicles properly, and so spermatorrhea arises.

The cases of prostatorrhea under consideration occurred in patients with chronic prostatitis. The orifices of the prostatic ducts too were found patulous. Prostatorrhea does not seem to be frequently associated with chronic prostatitis, for the condition was met with but 7 times in 65 cases. Prostatorrhea may be attributed to atony of the prostatic ducts. It is occasionally seen following gonorrhea which has involved the prostatic ducts but not necessarily the prostate gland itself. The walls of the ducts become indurated and the orifices gape, thus giving free vent to the prostatic secretion.

#### Concerning Therapy of Ureteral Calculus.

Franz Weisz (*Berlin-Klin. Woch.*, Dec. 4, 1911), reports a case in which an injection of 10 grm. of sterile glycerin was made into



the ureter. Six hours later the patient voided a small stone. About 24 hours subsequently the patient had an attack of urinary retention, and on examination a stone larger than the one first passed was found impacted in the fossa navicularis. This was removed by meatotomy. The second large stone was no doubt mobilized by the peristalsis set up by the glycerine, and its downward passage facilitated.

#### The Cure of Prostatic Obstruction.

H. H. Young, (*Surg. Gyn. Obstet.*, 1911, XIII, 269), after trying the suprapubic route, the perineal operation of Alexander and the Bottini operation for the relief of prostatic obstruction, developed a conservative perineal method of prostatectomy. He has found that in a certain number of cases, where the obstruction is caused by an inflammatory median bar, relief can be obtained by excision by means of a special "punch" which he has used upon about seventy cases with no deaths and with excellent results. He outlines the technique of the so-called conservative perineal prostatectomy. An inverted V incision is used to give an operative space which corresponds to the interval between the ischio-pubic rami. This incision extends only through skin and subcutaneous fascia. By blunt dissection the transversus perinei central tendon and levator ani muscles are exposed. After division of the central tendon, a good exposure of the membranous urethra behind the triangular ligament and external sphincter is obtained. The membranous urethra is opened on a sound and a tractor inserted. When the rectum is pushed back, excellent exposure of the prostate is obtained and the gland can be drawn down to the surface of the skin where the lateral and median lobes may be enucleated. The author mentions as the advantages of this route, the prevention of incision into the bulb and resultant hemorrhage, the prevention of injury to the important muscular and sphincteric structures of the triangular ligament and the good exposure. If malignancy is demonstrated, a radical operation can be done. In enucleating the prostate, Young uses bilateral incision so as to preserve the floor of the urethra and ejaculatory ducts. After enucleating the lateral lobes, the median lobe is drawn down into either of the lateral cavities and enucleated. The two extravescical cavities left by the removal of the prostate can be packed with gauze after the removal of which they rapidly collapse. The patient is up in a chair within a few days.

Of 482 cases operated by Young for benign hypertrophy and cancer, 18 were over 80 years of age; 75 over 75 years of age; 171 over 70 years of age. The fistula closed in 18 cases during the first week after the operation and in 56 per cent. of the cases in less than 21 days. In 14 per cent. the fistula was present after the sixth week, and in 27 cases out of 450, the fistula persisted longer than

the third month. Among the 450 operative cases Young has been able to find 331 who are still alive. The time elapsed since operation is 7 years in 13 cases and in only 26 cases under 6 months. Of the 331, the majority have polyuria, and 22 per cent. do not have to arise at night to urinate. During the day all but 12 per cent. retained their urine three hours or more. But 4 patients (sclerotic type), have had a return of the obstruction. Partial retention has occurred in 8 cases. Three cases have partial incontinence which is attributed to an incomplete operation, a small lobule of prostate being left behind. Two cases of recto-urethral fistula resulted. The sexual power was studied in 251 cases (operated upon more than a year ago). Of them 133 were normal before operation and 78 had a complete return of function. In 75 per cent. erections have returned. Of the 24 cases in which erections have not returned, 13 are over 70 years of age; two have tabes dorsalis. In five the ejaculatory ducts were injured. Seventy-nine patients have died since leaving the hospital, 13 of heart disease, 12 of kidney disease, 7 of lung affections and 2 of spinal cord lesions. Of 450 cases of benign hypertrophy, there were 17 deaths following the operation or 3.77 per cent. This mortality may be reduced by preparatory treatment. The estimation of the functional capacity of the kidneys by means of the phenosulphonaphthalein test has proved of great value.

#### Pathological Classification of Sclerotic Kidney.

Fahr (*Frankfurter Zeitschr. f. Pathol.*, Vol IX, No. 1, p. 14), makes a contribution to the pathology of the sclerotic kidney and takes up the question of sclerosis of the small intraparenchymatous vessels. Two groups of changes lead to the production of the sclerotic kidney, those attending inflammatory processes and those due to vascular lesions. The author believes that, as a result of arteriosclerosis, small anemic necroses develop. These involve a scant number of glomeruli with their corresponding tubules, leaving the surrounding renal parenchyma practically intact. It is because of this anatomical fact, that the arteriosclerotic kidney may clinically appear to possess adequate function. In the inflammatory type, however, a more or less diffuse derangement of the integrity of the parenchyma takes place with consequent functional impairment of greater severity.

## SOCIETY PROCEEDINGS

### THE NEW YORK ACADEMY OF MEDICINE

#### SECTION ON GENITO-URINARY SURGERY

Clinical Meeting, December 20, 1911

#### CASE OF PAPILLOMA OF THE BLADDER

*Dr. J. F. McCarthy* presented an interesting case of a patient in whom a papilloma situated at the left ureteral orifice had been removed by supra-pubic operation about eighteen months previously. Eight weeks ago the patient developed haematuria due to a recurrence which was markedly improved by subsequent treatments with the fulguration method. *Dr. McCarthy* then showed an additional series of papillomas of the bladder also treated by the high frequency current.

#### DISCUSSION

*Dr. Furniss* reported a case of a woman in whom he had employed the fulguration method and in whom an alarming hemorrhage following the treatments made supra-pubic cystotomy imperative. He was surprised upon opening the bladder to note the depth of the cauterization.

*Dr. Hayden* concurred in the opinion of *Dr. McCarthy* as to the satisfactory results of some of the cases treated by the method in question and was very much gratified at the rapid disappearance of the tumors.

*Dr. Pedersen* described the case of a patient in whom a papilloma had been removed a year previously by the supra-pubic route and in whom multiple recurrences were subsequently destroyed by the fulguration method.

*Dr. Buerger* said that the deep burning, which was unnecessary, could be avoided by simply fulgurating the surface of the growth. He did not think that blind fulguration was the proper procedure in most cases. It was better to fulgurate the surface and see what is being done, and to make more frequent applications.

*Dr. Keyes* said that he had had cases where he felt he would not have made any headway if he had not stuck in his wire and let it go. The patient had been bleeding constantly. One has to do the best one can, and he had felt that it would be hopeless unless he had put in the wire as deep as he could. He has followed this practice in twelve or thirteen cases, and had only one with a hemorrhage such as spoken of by *Dr. Furniss*. In that instance, the man began to bleed the day after treatment. After the operation, he went to bed and stayed there, and had a very severe hemorrhage—but that was the only one.

*Dr. Furniss* said that he did not think it made very much difference whether you stick the wire in because the burning takes place at two points, the point of contact and the narrowest portion of the tissue, the pedicle. He had demonstrated the deep cautery effect on a pile of meat in water.

*Dr. McCarthy* in closing said that he also believed that a deep effect should be sought after. In one case he had also seen very profuse hematuria after fulguration treatment.

\* \* \* \* \*

TWO CASES OF STRICTURE OF THE LOWER END OF THE URETER:  
ARGYROL PHOTOGRAPHS:

Presented by *Dr. H. D. Furniss*. The first case was a woman, 45 years of age, who had been operated upon for gall bladder disease, a year ago, and was not relieved although she was in the hands of one of the best surgeons in the city. Pyeloradiography after injection with argyrol showed a narrowing of the vesical portion of the ureter, with a marked dilatation above, although there seemed to be no obstruction to the catheter whatever. *Dr. Furniss* cut the ureter above the stricture and made a fresh vesical implantation which was unsuccessful because retraction of the ureter took place and a fistula was established. Eventually nephrectomy became necessary because of infection of the kidney.

The second patient had complained of pain in the right upper quadrant of the abdomen. He was operated upon for appendicitis without improvement, the appendix appearing normal, and later for gall bladder disease without relief. Argyrol photographs demonstrated a dilated ureter above the vesical orifice. There was some difficulty in obtaining a good picture of the lower end of the ureter at first, because a catheter was passed into the ureter, and the argyrol did not leak down rapidly enough. It would have been better to have drained the ureter from the bottom and then to have injected the argyrol. It would then have extended all the way down, and there would have been no trouble in getting the radiographs. These cases were both operated upon by good surgeons, one of them the best in the city. The urinary findings were negative in both cases.

DISCUSSION

*Dr. Ware* commented on the fact that infection could be induced by operating in cases such as the one reported with resulting sacrifice of the kidney. Some of the originators of the method predicted that the data furnished by it could be misleading. Certain other facts beside the picture should be considered before conclusions can be drawn. If a copious flow of urine is obtained on introduction of the catheter then you have evidence that retention or dilatation exists.

*Dr. Schmitter*, referring to the principles of dilating the pelvis of the kidney, said that he had done a great deal of anatomical work, and had injected a good many ureters of human beings and of the lower animals with various solutions, and had made casts, and many were so strong as to burst the pelvis, yet he got no dilatation to any extent. The normal pelvis of the kidney does not dilate under direct pressure.

*Dr. Furniss* said that he had tried some distensions of kidneys at Bellevue College to see how much increase in size he could get, and there was practically very little. The fact of an unfortunate result later on in the case did not vitiate the value of the method of diagnosis; it was unfortunate, but he had been honest in reporting it. He would certainly attempt reimplantation again.

\* \* \* \* \*

#### A CASE OF LOCOMOTOR ATAXIA TREATED WITH SALVARSAN

*Dr. James Pedersen* presented the patient for two reasons, because of the abrupt, very marked improvement, and because he wished to learn to what extent the other members of the Section were using salvarsan in similar cases. The patient, now forty-six years of age and married, had contracted syphilis twenty-two years ago. Symptoms of locomotor ataxia had existed for the past seven years. Examination showed absent reflexes, a marked Romberg, tightly contracted pupils, which, however, reacted slightly to light and distance. His gait was extremely ataxic, and he required the support of canes in walking. He was given 0.3 gm of Salvarsan intravenously on Nov. 10th. No reaction followed, and the patient left the hospital on the next day. About four weeks after the first intra-venous injection, the improvement was striking. He walked with surprising steadiness, and without a cane or other assistance; the girdle sensations had disappeared; there was no incontinence; constipation had given place to a normal regularity. He reported that the improvement began at once, and that three days after the first intra-venous injection he had been able to return to his work. He was given a second injection intra-venously on December 15th. It was followed by a very slight reaction, and a tingling sensation all over the body. The most marked features in the case are the marked improvement in the gait, three days after the first treatment with Salvarsan, the gain in weight and the general sense of well-being.

#### DISCUSSION

*Dr. Hayden* said that his experience with Salvarsan in locomotor ataxia amounted to five cases. The immediate results were very brilliant, but at the end of a few weeks the symptoms recurred, and in spite of subsequent injections the patients were not benefited.

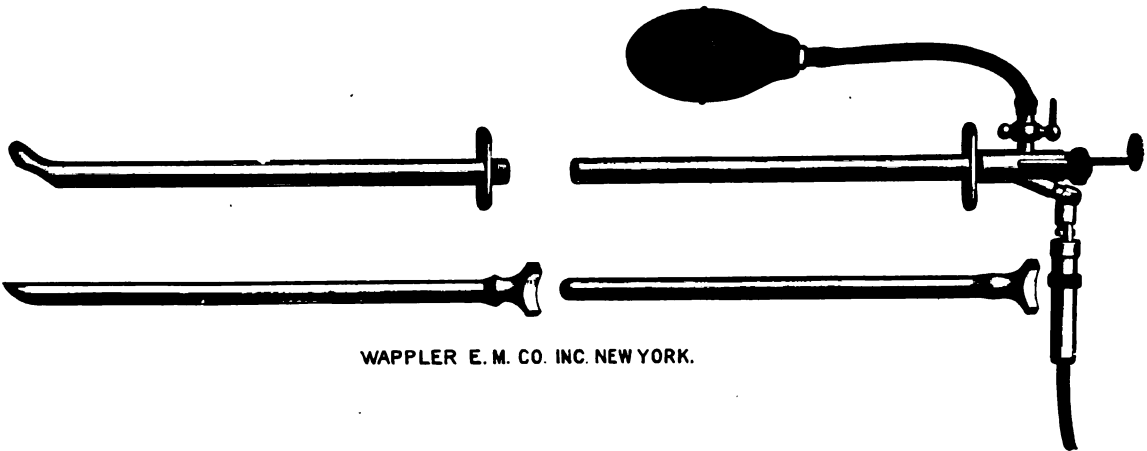
*Dr. Barringer* inquired whether it might not have been a case of spinal syphilis rather than locomotor ataxia.

*Dr. Pedersen*, in closing the discussion, said that *Dr. Barringer's* question had not occurred to him. He did not think it would make any practical difference in the effect of the Salvarsan in this particular case, however. He quoted *Dr. Fordyce* who has been using Salvarsan in tabs and other nerve lesions, with good results in some cases and disappointing results in others.

\* \* \* \* \*

#### A NEW URETHROSCOPE

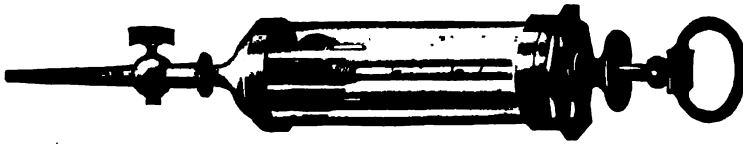
*Dr. James R. Hayden* said that he had had this instrument built with the purpose of obviating many of the objections that are present in the ones now used, with both direct and indirect illumination. He had always experienced a great deal of difficulty with using direct illumination; with the light in the end of the tube, the lamp becomes obscured by blood so that the field is left in darkness until



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a fresh lamp is put in; if light is in the proximal end of the instrument, it is more or less in the way of the instruments. In this type, the lamp is practically outside of the tube in front, and the lens is a plano-convex lens, a collecting lens, and gives a brilliant illumination at the distal end of the tube, or in the urethra. It is equally useful for the posterior or anterior urethra. He had recently used it very satisfactorily in a patient who took the endoscope with ease, and was able to catheterize both ureters through the posterior tube, and the same day removed a small calculus from the bladder. If air distension is desired, a small bulb could be attached and air forced through the tube, dilating the urethra to any extent desired. For ordinary examinations one can use a magnifying glass on a slender rod, so that applications can be easily made. The upper and lower surfaces were milled, which gives a good grip.

*Dr. Hayden* also showed a syringe (see figure) constructed of nickel-plated metal and glass that can be boiled without injury. The barrel and piston rod are of such a length as to be conveniently held and operated with one hand. The plunger is constructed of metal and rubber and can by a simple screw arrangement be expanded or contracted to fit the glass barrel. The tapering metal coupler with stop-cock fits any size catheter or tube and the cock when closed prevents the escape of the solution from the bladder, or the entrance of air into that viscus when the syringe is disconnected for refilling. The simple bayonet joint enables the operator to take the syringe



apart quickly for cleaning, and the octagonal end of the barrel prevents the instrument from rolling when it is laid down.

#### DISCUSSION

*Dr. Ware* said that he could commend the simple instruments such as the one shown. In regard to the posterior urethroscope, he had been surprised to find what an immense amount of work can be done with the open end of the tube, though it would never be possible except in the hands of a very few. The introduction of the light on the side is an admirable improvement, and he would try to possess one, for the lamp at the end gets covered with blood very quickly.

\* \* \* \* \*

#### CHANCER OF CUTANEOUS SURFACE OF LOWER LIP SIMULATED EPITHELIOMA

Presented by *Dr. K. B. Page*. Three months before the patient had cut himself while shaving, and had a sore which gradually grew larger until it reached its present condition. A diagnosis of epithelioma was made. A week ago he presented himself with a macular eruption over his chest. He was given an intravenous injection of Salvarsan, and the growth had already begun to cicatrize. It was interesting to note the rapid improvement and healing after the one injection of Salvarsan.

#### DISCUSSION

*Dr. Brouner* also described a case in which it was difficult to determine whether the lesion on the lip was a chancre or an epithelioma. The action of Salvarsan, he thought, was surprisingly rapid. One of the disappointing things about the treatment, however, is that it gives unintelligent people a false sense of security, and they do not follow up the treatment properly.

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## A NEGLECTED PRINCIPLE IN CYSTOSCOPY

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**I**N a recent admirable article on the genesis of the modern cystoscope<sup>1</sup> we find but scant mention made of the direct cystoscope. Following the lead of European observers the majority of American urologists to-day are employing the lens type of cystoscope. In the choice of such an instrument one may well be bewildered by the array to be found in the various catalogues. They vary from the simple indirect lens of Nitze<sup>2</sup> to the complete and all embracing cystoscope of recent invention. It is, therefore, with much hesitation that the writer ventures to describe another cystoscope and add to the already unlimited armamentarium. Again, it is not so much to the instrument that he wishes to draw attention as it is to the employment of the somewhat neglected if not new method of direct cystoscopy.

The direct cystoscope has been variously employed in the cystoscopic past. Foremost among the list of adherents to the direct method we find the name of Howard Kelly.<sup>3</sup> His well known methods need no further description, and to-day they are still widely employed. His method has not, however, received universal acceptance for several reasons, namely, (1) the preponderance of lens sentiment; (2) the awkward position and exposure of the patient, particularly if anesthetic be given; (3) the inability to employ the method in the male. The credit

<sup>1</sup> Lewis (B): "American Jour. of Urology," 1909, v. p. 144-161.

<sup>2</sup> Nitze: Cent. f. d. Krankh. der Harn und Sex. Org., 1897, Hft. 7, p. 369.

<sup>3</sup> Kelly: Bull. Johns Hopkins Hosp., Dec., 1893.



for presenting the first direct cystoscope of the modern type should be given to Bransford Lewis.<sup>4</sup> His instrument permitted the dorsal position use in the male and included catheterizing tubes. Instead of relying on atmospheric pressure to distend the bladder, as in the Kelly method, he employed an air-pump with a retaining window. Direct air cystoscopes, similar to that of Bransford Lewis, appeared in rapid succession, Koch, Bel-field, Snell, Elsner,<sup>5</sup> Luys,<sup>6</sup> etc. These instruments did not receive widespread employment largely because of the awkwardness and pain caused by air distention so employed, and by the general recognition that water was the better bladder medium in cystoscopy. The employment of water in this type of air cystoscope is responsible for its survival and to my predecessor, the late M. C. Millet, must be given credit for first demonstrating the value of this method. He was among the first to employ the direct view air cystoscope and, after finding the use of air so often unsatisfactory, substituted water for air. The use of water in the direct cystoscope embodied an entirely new principle. At first thought the idea of looking through a tube of water hardly seems practical. The water medium magnifies the field slightly and brings it out in clear relief, but does not distort the object observed. Furthermore, it is less painful than air in the bladder and is more easily controlled. Having briefly outlined the origin of the method we are employing, I will discuss the comparative advantages of the lens instruments now used and the direct view water cystoscope.

The lens instrument offers the following advantages: (1) It gives a field of greater circumference. (2) It permits a clearer view of the anterior wall of the bladder in the male. (3) It offers a more detailed and magnified view of the bladder mucosa.

While it is true that the field of vision in an observation lens is greater than through a direct cystoscope, nevertheless with many catheterizing lenses the actual diameter of the field is not very much larger. Moreover, what one loses in circumference of the field is at least partially made up by the increase in perspective gained by direct inspection. Although the anterior bladder wall is easily viewed through an observation lens,

<sup>4</sup> Lewis (B): "Jr. of Cutaneous & Genito-Urinary Dis.," 1900, p. 420.

<sup>5</sup> Elsner: Pilcher's "Practical Cystoscopy," p. 82-83.

<sup>6</sup> Luys: Ass. franc. d'urol. Proc.-verb, 1905, Par., 1906, p. 467-482.

still in the female it can be inspected quite as easily through the direct cystoscope. By partially emptying the bladder and by permitting the roof to sag down, but little escapes inspection in the male bladder. With greatly hypertrophied prostates it may occasionally become difficult to inspect the anterior bladder wall. While the detailed and magnified view of the bladder mucosa and ureteral meati obtained through a lens may occasionally be of some advantage, nevertheless the picture obtained by the unaided eye is a truer one and loses no data of practical value.

#### THE ADVANTAGES OF THE DIRECT VIEW

(1) Its simpler mechanism. (2) A clearer view of the field in case of hemorrhage. (3) The field is natural, requiring no interpretation. (4) Use as urethroscope as well.

The simpler mechanism of the direct cystoscope offers the following advantages: (a) It is less often damaged and in need of repair than the fine lens adjustments; (b) it is more easily sterilized by momentary immersion in pure phenol followed by washing in water; (c) its use does not require careful preliminary irrigation of the bladder. With a freely bleeding bladder mucosa it is frequently impossible to obtain a clear view through a lens cystoscope in spite of continuous irrigation. With the direct instrument, on the other hand, we are looking through a clear stream of water which is continuously entering the bladder and washing the observed area, and bleeding is seldom so great as to render examination impossible. Most beginners in the use of the lens cystoscope complain of the difficulty in interpreting the field observed. Although the inversion of the object is now corrected by the latest lenses and the interpretation is somewhat simplified, nevertheless the magnification in the frequently blurred field is confusing to the novice. On the other hand, the direct natural view is readily and accurately interpreted in a comparatively short time.

The direct cystoscope may also be employed as a urethroscope. Although water is now generally recognized as the best medium adapted to view the posterior urethra, it is only recently that it has been adapted to the use of the lens urethroscope. We have examined the posterior urethra through direct inspection with water distention since many years. While the view thus obtained may lack the magnified detail afforded by the lens instruments, the actual value of which is questionable, everything of practical importance is clearly visible. Although the im-

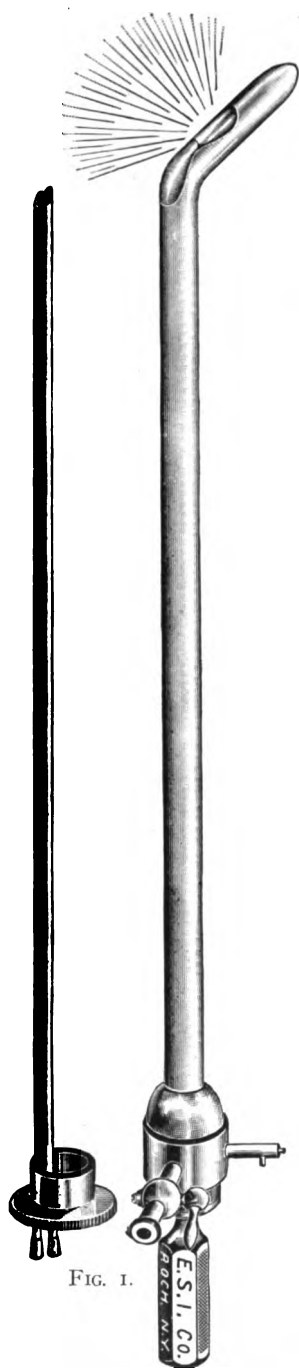


FIG. 1.

portance of routine urethral examination has undoubtedly been recently exaggerated, an instrument which will permit urethroscopic as well as cystoscopic examination is frequently of considerable value. Of particular interest is the direct inspection of the prostate from the viewpoint of the prostatic urethra from which the relative size, position and frequently character of the enlargement is readily ascertained.

#### METHOD OF USING THE DIRECT CYSTOSCOPE<sup>7</sup>

(Fig. 1.) The instrument is sterilized by momentary immersion in phenol and then washed in sterile water. No previous irrigation of the patient's bladder is necessary. After introducing the cystoscope the water stop-cock is connected with a receptacle containing boric acid solution which we use to distend the bladder. Care must be taken to remove all bubbles of air from the cystoscope, otherwise the vision will be interfered with. This is easily done by removing the inspection window and readjusting when the tube is filled with water or by merely raising the beak and turning the distending medium off and on. The trigone and lower two thirds of the bladder will be easily inspected without moving the instrument much. In order to view the roof and anterior wall the patient's pelvis may be elevated, the bladder fluid allowed to escape partially, and, with the beak pointing towards the bladder floor, the sagging roof is readily brought into view. The urethra is likewise easily inspected by merely withdrawing the instrument into the urethra under constant water pressure. If, after inspecting the bladder, ureteral cathe-

<sup>7</sup> The W. F. Braasch Catheterizing Cystoscope.

eterization is indicated, we have the choice of several catheterizing tubes: a bilateral tube for catheters size ch. 6, a single tube for size ch. 7, and a single tube for size ch. 9. The catheterizing tubes are removable and may be sterilized by boiling. Wax tipped catheters may be used by introducing the catheter reversed into the single tubes, leaving the wax tip protruding. The tubes are straight, so that the slightest ureteral obstruction and often its character are readily felt by the catheter. The cystoscope permits only of direct catheterization and, in our experience, this has always sufficed with any ureter which could possibly be catheterized. Probably the greatest value of the direct cystoscope is its simplicity, which must commend the instrument to any observer and particularly to the beginner.

## THE TREATMENT OF MULTILOCULAR KIDNEY CYSTOMA (CONGENITAL CYSTIC KIDNEY) BY MEANS OF MULTIPLE PUNCTURES.<sup>1</sup>

By THROKILD ROVSING, M.D.

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**T**HIS most remarkable disease known as multilocular kidney cystoma (gros rein cystique; Multelokuläres Neirenkystom) to-day remains as great a mystery concerning its origin as it was sixteen years ago when I described it in my work upon renal surgery. Although Virchow's point of view that it is a retention cyst due to inflammation of the pelvis and pyramids, is constantly losing ground, we are about evenly divided as to whether the disease represents a congenital malformation or a neoplasm; an epithelioma mucoides (Malassez) or a cystic fibroadenoma (Hufschind and Nauwerck). The former standpoint is partly justified by the fact that the malady is often found congenitally, partly by the fact that it is occasionally and apparently a family ailment. On the other hand the presence of similar cysts in the liver, and now and then in other organs, as well as its rapid growth may be construed as evidence that the tumor is a neoplasm. Under these circumstances we are compelled to regard the hepatic cysts as metastases. The coexistence of the disease in both kidneys further compels this interpretation, although the malady is usually in a less advanced stage in one side than upon the other, one kidney being large and resembling a cluster of grapes, the other being normal in size but containing numerous tiny cysts.

In the broadest sense of the term the neoplasm is not malignant. Its growth is not ruthless and at the expense of the normal tissue. But we are familiar with other non-malignant growths which form metastases, particularly the thyroid and ovarian cystadenoma, the structure of which strongly suggests the disease under discussion.

From another side, however, and in another sense the disease is highly malignant. This is due to its being bilateral and to the fact that in time the mechanical effects of the tumor impair the renal function. The first of these two characteristics has made of the disease a *noli me tangere* on my part, as far as

<sup>1</sup> Presented at the Danish Surgical Society, Oct. 29, 1910. Translation by Dr. W. J. Heimann.

performing a nephrectomy is concerned. In a certain number of cases experience has shown that a nephrectomy may be performed when the opposite kidney is but slightly involved. Usually, however, even in these instances fatal uremia has supervened and thus the operation has been futile, as the patient's life has not been prolonged and as the symptoms have at the most been but temporarily alleviated. Thus in my text book of 1895 I opposed operating. Concerning nephrectomy I still maintain this view. Subsequent experience, however, has taught me that we possess another surgical method which not only is palliative, but which may prolong life, and improve general health. This method is one of multiple punctures of the cysts, the tumor having been exposed by a lumbar incision. I shall now present the cases which first impelled me to attempt further study in this form of treatment.

*Case 1.* Merchant, Mr. P., 41 years old, native of Frederikshaven, Private Hospital. Admitted January 18, discharged February 29, 1904. Family history negative. Nine years ago an alleged appendicitis; otherwise well until present illness over one year ago. This began with severe pain in the left kidney region which radiated forward. The pain would come on without apparent cause and last a half day. There were three such attacks and in one the right side was also slightly involved. There was hematuria, both during and independent of the attacks. The patient feels well but has grown somewhat thinner. The urine, drawn off into a sterile vessel, contained a few erythrocytes, epithelial cells, but no micro-organisms. The patient is heavily built, pallid, a trifle yellow and slightly cachectic. The left kidney is found upon abdominal examination, large; the other is impalpable. Cystoscopy reveals a trabeculated bladder with a pale mucosa. The ureteral orifices are seen in the center of a steep plateau. By ureteral catheterization the urine from the left kidney is found to be cloudy and to contain albumin; that from the right side contains none. In 2,000 c.c. of urine 11.4 g. of urea were present. The freezing point of the blood was between 0.53 and 0.54.

Urine from right ureter	Freezing point	0.89
	Urea	4.60
Urine from left ureter	Freezing point	0.72
	Urea	0.42

**Diagnosis:** Tumor of the left kidney.

On the 22nd of January the patient was operated. An incision was made in the left lumbar region. Upon division of the fatty capsule the kidney could be felt as a large nodular mass from above; when delivered into the wound the organ was found to be 18 cm. long, irregularly nodular, the surface consisting of cysts varying in size from that of a pea to a walnut. Since this disease is usually bilateral a nephrectomy was contraindicated and the low urea content of the secretion from the right side indicated that this kidney was also probably diseased. Thus with the idea of diminishing the patient's suffering by removal of tension and in the hope that benefit might accrue to the remaining normal renal tissue, multiple punctures of the organ were performed. First the superficial then the deeper cysts were emptied, practically no hemorrhage resulting. A biopsy was performed for purpose of study. After the aspiration, the kidney, now but one-half its former size, was replaced in situ. It was drained with a gauze drain, impregnated with silver nitrate, the wound was washed out with aluminum bronze and dressed with collodion and cotton. For three days there was a slight discharge of urinous fluid into the dressing. The patient's temperature was somewhat elevated for three days. During the day after operation only 1,050 c.c. of urine were voided as against a previous daily average of 1,500. By the second day 2,500 c.c. were passed, but the regular daily amount became and remained 2,000. By the 27th of February there was no albuminuria, the patient was well for three years and finally died of uremia following fever.

What induced me to attempt the above method was the desire to relieve the patient of the pain caused by the tumor. I was sceptical concerning the probable outcome of the operation, for if the retention theory correctly explained the nature of the disease the result to be expected from this operation would be a constant seeping from the puncture wounds, urinary infiltration, and a urinary fistula at the site of the incision. Should the new growth theory be correct I feared extension into the perirenal tissue. Neither of these eventualities supervened. The kidney did not even attain its former huge proportions. The wound healed promptly and the albuminuria disappeared. Thus the operation was not only palliative, but it even improved the renal function. I was therefore encouraged to attempt the same procedure in two other cases.

*Case 2.* Johanna Marie P., 55 years old, married. Admitted

to Frederikshaven Hospital February 16, discharged March 31, 1908. Family history good; always well; has one child of 32 years. Three years ago patient was awakened by sudden severe pain in the right kidney region; it lasted a week and recurred from time to time. Urination was painless. There was hematuria only during the first attack. Frequently the urine was cloudy. Often a stabbing sensation was felt on the right side. The right kidney was palpable, half of it projected below the costal margin; it was somewhat tender. The left kidney was impalpable. The urine obtained under sterile precautions, is cloudy, acid, contains albumin, but no blood or sugar. It contains epithelial and pus cells; but no erythrocytes, casts or bacteria were found; 2,500 c.c. contained 45 g. of urea. Roentgen examination showed no calculus. Operation February 29, 1908. Right lumbar incision. The enormously enlarged kidney was felt projecting downward, the surface was irregularly nodular. When delivered into the wound it was found to be a mass of cysts, one of which, as large as a pigeon, projected from the middle. After multiple punctures the kidney, greatly decreased in size, was replaced. Cigarette drain of silver nitrate impregnated gauze, and gutta-percha dam. Uneventful recovery. The wound was healed by March 30. The pain has disappeared. Urine is clear, but there is faint trace of albumin; 10 g. of urea and from 1,100 to 1,500 c.c. of urine are excreted daily. Up to the present time, two and a half years after operation, the patient has been well.

*Case 3.* Julia W., 52 years old; single; Reichskrankenhaus; admitted August 10, discharged October 15. Brothers and sisters well. Father died of "renal tumor," mother of renal cancer. Periods regular. Never pregnant. Since climacteric five years before constant pain in lower abdomen, chiefly on the left side of the epigastrium and about umbilicus. She sleeps well. Constipation is complained of; patient is thin, pale, and somewhat cachectic; abdomen is soft, no epigastric pulsation. On the left side a large tumor may be felt projecting below the costal margin to the iliac spine while a nodular prominence of the growth extends inward to the mid line. The lower pole of the right kidney is palpable. The stomach is found normal as to motility, and the gastric analysis is also found normal. Hemoglobin is 71%. The urine is clear, no albumin, 440 c.c. are voided in 24 hours, containing 8 g. of urea. Operation September 5. Left lumbar incision was made, tumor was delivered into the wound and found



to be a huge multilocular cystic kidney resembling an enormous cluster of grapes. Right lumbar incision is now made. The right kidney, though small, is also cystic, the process here being less advanced, for normal renal tissue can be seen. The largest cysts are the size of peas, and sparse. This kidney is not punctured. The wound is closed. The left kidney, however, is again brought into the wound and multiple punctures as in the other cases are made. Some of the cysts are as large as mandarins, and most of them are filled with cloudy fluid seeming to contain cholesterolin. There was primary union, although for a few days some fluid came from the drained wound. The patient's abdominal pain vanished immediately, the 24 hour quantity of urine increased to 1,250 c.c. and urea excreted in a proportion of 23.6 g. to 520 c.c. and 34 g. to 700 c.c. of urine. Appetite improved, and the patient's color became healthy.

It is to be noted that in these cases the pains disappeared and renal function was reestablished to a striking degree. In Case 2 the albuminuria was diminished, the urinary excretion tripled, the urea excretion doubled.<sup>1</sup> In the third case there had been no albuminuria, but the quantity of urine was scant, averaging but 440 c.c. in 24 hours, the urea content having been only 3.4 g. Within two days after the operation the urea excretion had risen to 12 g., the urine to 520 c.c. and after a week the urea excretion became 34.9 g. in 700 c.c. of urine, showing an eightfold increase.

There is but one explanation for this unmistakable improvement in the activity of the kidneys. Normal renal tissue is present among the cysts. The pressure of the latter when full, and tense, inhibits renal function which is resumed when the mechanical effects of pressure are removed. The improvement of the patient is also thus accounted for. It is not claimed that the disease is cured by the operation or that its ultimate fatal issue is more than just postponed. The disappearance of the pain, however, the prolonged and striking restoration of renal activity, the simplicity of the procedure, and the absence of shock after the operation should constitute a sufficient incentive to attempt this treatment herein outlined in every case of this type.

## THE USE OF THE ULTRA-VIOLET RAY IN DISEASES OF THE GENITO-URINARY TRACT

By JAMES R. HAYDEN, M.D.

**I**N the following article I intend giving a brief resumé of the results I have obtained with the "ultra-violet ray" or high frequency currents in a small number of cases. My object in presenting these results is to elicit a free discussion as to the real value and permanent results of this method of treatment, and also a recital of the experiences of the members who have used the rays in similar conditions. The number of cases cited is small and the time of observation is short, and therefore no claims as to cures are made. The following groups of cases were treated.

*Epididymitis* — Nine cases of epididymitis were treated; these comprised five cases of sub-acute gonorrheal epididymitis, one case of sub-acute traumatic epididymitis, and one case of bilateral tubercular epididymitis with vesiculitis and prostatitis. In the gonorrheal and traumatic cases the Oudin monopolar current was used daily for from one to two minutes with a glass surface vacuum tube, a No. 3 Reo. and 1/8 inch spark. Sometimes the electrode was held in direct contact with the integument or the part was sparked by holding the electrode about a quarter of an inch away. In all of these cases there has been a marked and rapid decrease in size and a softening of the nodules. In the tubercular case the patient complained of severe pain in the prostate and testes. A glass surface electrode was used for the epididymes and a rectal tube for the prostate. The rectal applications were given every day and lasted for five minutes with a quarter of an inch spark and No. 3 Reo. Now after nine applications the patient is practically free of pain and has returned to the country for sanatorium treatment of his pulmonary tuberculosis. This was a most gratifying result but as only three weeks have elapsed since the last treatment the permanency of the cure is still doubtful.

*Stricture* — Three cases of urethral stricture were treated.

*Case I* — was a number 24 F. fibrous stricture in the bulbous urethra with marked pyuria. Internal and external urethrotomy had been performed over a year ago; no instrumentation had been done since the operation. The patient refused operation and dreaded dilatation so I was tempted to try the high frequency current. A number 20 F. glass tube was passed through the

stricture and the Oudin current used; applications were administered every day for one to three minutes with an eight-inch spark with a No. 3 Reo. The treatment produced no pain or irritation and at the end of three weeks the urine was much clearer, the stricture and urethral walls much softer and a No. 25 F. sound passes without as much pain or bleeding as formerly, showing that there is no real absorption of the stricture tissue but simply an amelioration of the symptoms due to a lessening of the inflammation.

*Case II* — was a stricture at the peno-scrotal junction admitting a No. 22 F. Internal urethrotomy had been done eight months ago, little instrumentation since. The urine was slightly turbid.

*Case III* — was a stricture in the bulbous portion admitting a No. 26 F. The urine was cloudy and contained many shreds; dilating instruments caused free bleeding. These two cases were treated as was Case I with the following results: No real absorption of stricture tissue took place, although there was some softening observed; the urine became markedly clearer and the flakes decreased in number.

*Hypertrophy of the Prostate* — In all, four cases were treated, These patients were all over sixty years of age and presented the usual symptoms of prostatic enlargement, one case having complete retention for six months, and the others residual urine in amounts varying between one and a half to four ounces. The treatment with the rays was advised as preparatory to radical operation and the patients informed as to its experimental nature. The Oudin monopolar current with a glass rectal tube was used daily or every other day for five minutes, the patient standing with the body bent over an operating table. A quarter of an inch spark with a No. 3 Reo was used. At the end of two to three weeks' treatment the results are as follows: Urination is less frequent and painful, the urine is clearer and the residual is less in amount. The gland is smaller and softer but there is no actual decrease in the size of the hypertrophied tissues. The improvement is no doubt due to a diminution of the accompanying prostatitis. The case with complete retention passed four ounces of purulent urine during a treatment and ever since has passed a few ounces of urine every three to four hours. His residual has diminished and his urine is clearer; the gland, however, has shown no diminution in size. The urine voided voluntarily during the treatment contains irregular masses which microscopically

consist of pus cells, epithelial cells from the prostate, and mucous, thus showing that the current causes sufficient contraction of the prostatic musculature for the gland to expel its diseased contents into the deep urethra.

*Prostatitis* — Six cases of chronic gonorrheal prostatitis were treated. The gland in some was soft and boggy, in others firm and dense, yielding from fifteen to sixty minims of prostatic fluid on massage. The Oudin monopolar with a glass rectal electrode was employed for five minutes daily or every other day, using a quarter of an inch spark and a No. 3 Reo. The gland decreased in size and became more normal to palpation. There was a decrease in prostatic fluid on massage and the prostatic sensations in the rectum, perineum and down the thighs disappeared in some and improved in others. In the dense, hard, painful variety the current causes a distinct softening of the gland with a decrease in the pain. The operator can massage the prostate with the flat rectal electrode during the treatment, the bladder being first distended with about eight ounces of warm boric acid or saline solution. This is voided after and will frequently contain elements from the prostate.

*Gonorrheal Arthritis* — Four cases of gonorrheal arthritis of the knee, ankle, and wrist joints were treated with the Oudin current with the glass electrode. Treatments were given daily for five minutes and proved most beneficial as shown by a cessation of pain and swelling and increase in joint motion. The boggiess of the soft tissues improved and the color of the integument became normal. In all of these cases the patients spoke of the relief and comfort afforded by the treatment.

*Impotentia* — One case due to a chronic gonorrheal prostatitis and urethritis of two years' duration was treated. For the past nine months erections were incomplete and desire was failing; ejaculations were painful and premature. Nocturnal pollutions were frequent and painful and sometimes blood-stained. The D'Arsonval bipolar current — 600 mill amp — Reo No. 1 with an eighth to a quarter inch spark was used, each application lasting from one to ten minutes. Treatments were given every third day and were followed immediately by marked improvement in all the above symptoms. After the first treatment the patient's impotence had practically disappeared; the treatment was then discontinued and the patient has remained well up to date.

*Malignant Disease of the Prostate* — One patient seventy-four years of age was treated. The prostate is of stony hard-

ness, smooth with prominent apex, borders and base. The gland is about the size of a large lemon and is not painful. The bladder base and all the surrounding tissues are markedly indurated. There is complete retention of urine. Catheterization is almost impossible on account of obstruction in the prostatic urethra. The patient has a right-sided hydrocele, after tapping 200 c.c. of clear fluid the testicle was apparently normal. The right hip joint is shown by radiography to be malignant and is so diagnosed by many prominent surgeons. There is a hard, dense, painless tumor the size of a large orange situated in the right iliac fossa to which it is apparently firmly attached. Cystoscopy is impossible. The patient has constant and distressing pain in the prostate gland, down the right thigh, in the perineum and the pelvic region generally. He is losing weight rapidly. The urine is normal with the exception of a trace of albumin and a few hyaline casts. The appetite is fair and the bowels are constipated. The patient is taking three grains of morphine daily for the alleviation of pain and the frequent attacks of vesical tenesmus. Any operative procedure was advised against on account of the advanced involvement and the patient's poor general condition. The Oudin current was used every other day per rectum, five minutes application, and the same current employed on alternate days over the hip, right half of the scrotum, and pelvic tumor. The result of this treatment at the end of six months is as follows: the pain has decreased to such an extent that it is controlled by an eighth to a quarter of a grain of morphine in twenty-four hours, instead of three grains. A No. 15 F. soft rubber catheter enters the bladder with ease and drains clear urine. The loss of weight has stopped but he has not regained any of the weight lost before treatment was instituted. The pelvic tumor is much smaller. The prostate is larger but a trifle softer in consistency. The process has destroyed all of the articulating surfaces of the hip joint so that walking is very difficult. The patient's color, pulse, and general condition have improved in all respects. The attacks of vesical tenesmus are of rare occurrence and of short duration and are readily controlled by internal medication. In this instance it seems as if the disease had been temporarily checked and the patient greatly relieved, for a time at least, of his distressing symptoms.

Before closing this report I would like to call attention to some practical points that have occurred to me while using these currents. The metal on the old handle is liable to spark and

burn the patient. To prevent this painful accident I have had the Wappler Co. construct an entirely insulated hard rubber handle which I find of great practical value. Instillations or irrigations of strong silver nitrate solutions just before or after a ray treatment are liable to be followed by severe vesical tenesmus and local irritation, so that I now use boric acid or saline solution for vesical distension when necessary. In using the surface electrode over diseased joints and cutaneous lesions we should treat very thoroughly the junction of healthy and diseased tissue so as to establish a normal circulation which in time will carry away the inflammatory and diseased products.

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Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

### REPORT OF BLADDER TUMORS TREATED BY FULGURATION

By D. A. SINCLAIR, M.D., Adj. Prof. Genito-Urinary Diseases: N. Y. Polyclinic Med. School and Hospital.

**F.** P. H., male. Aged 33. Single.

*Previous History.* Gonorrhea in 1902, which lasted 2 months; also, sore on penis some years ago, which disappeared under treatment. Patient was not told it was specific.

*Present History.* Patient began to pass blood, mixed with urine, in the spring of 1909. This recurred in July, and again in September of the same year, and from the latter date at intervals until March 29, 1910, when I first saw him. He was then passing it only at the conclusion of the urinary act, and the amount was small—a few drops—unaccompanied by pain, but patient complained of a feeling of dulness in both renal regions. He thought exercise increased the amount of blood. No stone had been passed. There was no interruption of the urinary stream, nor had retention of urine been a symptom.

Urinate 4 times by day, not at all by night.

Two weeks before visiting me, he noticed a slight yellowish discharge, although he had not had intercourse for a long time preceding its appearance. No gonococci present.

The urine which he passed in my presence was cloudy, and contained numerous small shreds, one of which was blood-stained. The bladder was filled with boric acid solution and a stone-searcher introduced. No stone was felt, but a decided resistance to turning it toward the left side of the bladder was encountered, which made me suspect the presence of a growth. The bladder was then

irrigated with boric acid solution until the flow returned clear, when it was moderately distended with the same solution and a cystoscope introduced.

On inspection, a tumor the size of a walnut was seen at the site of the left ureteral opening on the base of the bladder; another, the size of a lima bean, directly on the roof of the bladder, and two smaller ones, as large as peas, on the neck of the bladder. All were pedunculated, and had a pinkish appearance, in which small blood-vessels could be plainly seen. The large growth wafted gracefully with the agitation incidental to moving the cystoscope about.

A diagnosis of papilloma was made from the clinical picture presented, as above described.

Inasmuch as the patient's sister had recently died following an operation on her bladder for cancer, and his mother had recently been operated on for a tumor of the breast (which proved to be cancer, and resulted fatally), he was naturally averse to undergoing a surgical operation.

Treatment by fulguration was begun on April 12th, two weeks after his first visit, and repeated every two weeks until August 1st. At this latter date there remained of the large papilloma only a small teat, half the size of a pea, and one of the small papillomata on the neck of the bladder. These were completely destroyed at the treatment given on October 12, 1910.

The patient stood the applications well, and with little discomfort. There was no reaction, and no blood was passed after the first treatment, excepting on one occasion, when the patient took a long and very rapid automobile ride when coming for treatment; and then the bleeding ceased after the application was made.

The last time I saw the urine it was clear, with numerous small shreds in it.

February 11, 1911. Patient says he feels perfectly well. Passes urine 4 times by day, and does not have to rise at night. There is no pain or burning, and no blood is passed.

July 12, 1911. Patient returned for examination. Cystoscopic examination shows 5 areas of growth: 2 at the neck of the bladder, one on either side of the left ureter and one in the left ureter. The growths on either side of the ureter were partial recurrences from the base of the previous large papillomata.

Fulguration through the Brown-Muerger cystoscope to the growths in the left ureter resulted in their complete destruction,

but attempts through this and other instruments to reach the growths at the neck of the bladder were unavailing, due to the position of the growths, which were so near the internal orifice that the light was completely obscured when the instruments were withdrawn to the necessary point of attack.

August 29, 1911, these growths were destroyed with the aid of the Chetwood cystoscope and urethroscope.

The question to be solved in this case is: Are these growths benign or malignant? Clinically they appear to exactly represent the text book pictures of papilloma. Their recurrences, however, and the family history of the patient make me fear they may have an element of malignancy in them. There is no way to decide in this particular case, as the obtaining of a specimen would necessitate a surgical operation and an excision not only of the growth itself, but a section of its base as well, to which the patient naturally objects, declaring that he does not want to know—but only wants the growths burned off. The success in this case—even if only temporary, I believe to amply justify the use of fulguration, which I regard as a splendid and most decided advance in the surgery of the bladder.

#### CANCER OF BLADDER

Mrs. S.; age, 64; married.

*Previous History.* Previous to the spring of 1909, patient never had been ill, except from natural causes, i.e., childbirth.

*Present Condition.* In the spring of 1909, she noticed accidentally that she had passed a clot of blood with her urine. Thereafter, she examined her urine on every convenient occasion, and invariably found blood clots in it. No other symptoms appeared. Her own expression: "If I were blind, I would not have known any blood came with my urine," shows how insidious was the onset of this serious condition.

About six months later, or in November, 1909, she noticed that her calls to urinate were becoming more frequent than seemed natural, and were accompanied by abnormal thirst and loss of flesh.

The urine was found to contain sugar, and she was accordingly placed on an anti-diabetic diet, when an improvement in her general condition followed, until June, 1910, when she was suddenly seized with intense bearing-down pains, accompanied by a strong desire to urinate, but was able to pass only a few drops. Her family physician was called, and on introducing the catheter, found an intermittent flow of urine, bloody in appearance, and



containing mucus and pus. Several such attacks followed in close succession, up to the time I was asked to see her.

*Examination.* The bladder was washed out with boric acid solution until the flow returned free from blood. The organ was then moderately distended with the boric solution and the cystoscope was introduced, but owing to the fact that the field became clouded by the admixture of blood, I was enabled to get but a short glimpse of a dark object, which appeared to be as large as a lime, situated in the base of the bladder and to the left of the median line, at a point corresponding to the opening of the left ureteral orifice.

The cystoscope was withdrawn, and the bladder irrigated with boric solution followed by repeated washings of alum solution (3i to the pint) which controlled the bleeding satisfactorily. The bladder was again distended with clear boric solution, and with the cystoscope in place, a perfectly clear field was to be seen. The mass before mentioned was then seen to be a tumor, with a broad base and nodulations about the size of raspberries over its entire free surface, which was covered by a dirty grayish-looking membrane.

The age of the patient, the appearance of the mass, with its broad, flat base and undulating surface, with the history of long-existing hemorrhage, suggested a tumor of malignant variety. The position of this growth allowed it to mechanically obstruct the flow of urine by more or less occluding the internal urethral orifice, as was evidenced by the condition which varied from a dribbling of urine to retention. Relief from this occlusion was obtained when the patient lay on her left side, thus causing the mass to fall away from the neck of the bladder by gravitation.

The selection of the method of treatment next presented itself for serious consideration, and I suggested the procedure devised by Dr. Beer but a short time before, which consists of burning by what is called fulguration, through the application direct to the growth of the high-frequency current, also known as the Oudin current. On account of the warm weather and the necessity of frequent sittings, if this means were employed, the patient requested that something be done that would enable her to get away from the city as soon as possible. Suprapubic cystotomy was considered, only to be dismissed on account of the gravity of the operation especially in a woman of her age and physique, as she was about 4 feet 10 inches in height and weighed nearly 180

pounds. Such an operation would confine her to bed for several weeks, besides leaving her with a sluggish wound, which might not heal for months.

The urethral route was considered favorably, and on June 22nd, the patient was anesthetized with gas and ether. The bladder was then irrigated with boric and alum solution until the flow returned clear, when it was moderately distended with boric solution and the cystoscope was introduced with the idea of thoroughly inspecting the condition under such favorable circumstances. This examination showed a single growth, which was near enough to the internal urethral orifice to be within easy reach of the index finger per urethra.

The urethra was next dilated to No. 44 French, with a Kollman dilator and then with the index finger, until the latter could easily enter the bladder. Palpation of the growth elicited a hard, uneven mass, over which the finger slipped as though it were covered with some oily material. The base was broad, fading imperceptibly into the surrounding tissue, and the surface was irregularly nodulated and smooth to the touch.

A pair of stone forceps was then introduced, and the body of the growth twisted and pulled away. It offered but slight resistance, being rather friable. Then, with a sharp curette, and lastly, with the index-finger nail, the balance of the growth was removed, even with the bladder wall.

An attempt was then made to cauterize the base with an electric cautery through a Kelly cystoscope, but this failed utterly on account of the blood which completely obscured the field and prevented me from seeing anything. Even if I could have seen sufficiently well, the blood, quickly congealing on the point of the cautery, would have defeated the object for which it was introduced. Furthermore, it was wise to quickly abandon effort in this direction, for with such a necessarily small cautery tip, used in so disadvantageous a manner, the danger of penetrating the bladder wall was imminent.

The bladder was next washed with alum solution (Squibb's Surgical Powder) which effectively controlled the bleeding, and for the purpose of continuous irrigation, a self-retaining double catheter was introduced into the bladder, the object being to prevent the formation of blood clots. Alum, alternating with boric solution, was used for this purpose, and continued for 24 hours. On June 24th (2 days later) the catheters were removed.

The patient left for the country on June 30th, passing her

urine without pain, no blood being present, and no incontinence, in spite of the great dilatation to which the urethra was subjected. There was no rise of temperature, and patient maintained a good general condition, free from any eventful reaction.

The specimen removed proved, on examination by three pathologists, to be carcinoma.

The prognosis was, of course, a return of the bladder growth; and I informed her relatives that experience with similar cases operated on, led me to expect such recurrence within 3 to 4 months.

The patient's history, from the time she left the city in June until her return in October, was uneventful, except that two weeks before her return she began to be troubled with frequency of urination, 4 times by night and 8 times by day, accompanied by slight tenesmus. No blood appeared as such, but she said her urine was dark red. This may or may not have been due to blood being present in small amounts.

December 1st, when I next saw her, the urine was cloudy from pus, but she complained of slight tenesmus, only. Examination of the bladder with the cystoscope revealed a complete recurrence of the tumor. As a return of her distressing symptoms was only a matter of a short time, and as something had to be done for her relief, her true condition was explained to her.

Fulguration was begun, and sittings were held on December 8th, 13th and 27th. On the latter date, considerable bleeding occurred incidental to the preparatory cleansing of her bladder, before I could obtain a view of the growth in order to burn it. This may be accounted for by the separation of the area burned at the previous sitting two weeks before, as it took about a week for the separation to occur.

After the third burning, her urinary frequency had not increased over what it had been when she returned from the country, nor did she have any pain, but she complained of an uncomfortable sensation in the hypogastric region.

January 5th, 1910, the date of the 5th treatment, the tumor had been reduced to two-thirds its original size.

January 12th, the date of the 6th sitting, I burned her more than usual, and 4 days later, when I visited her, she told me she had passed a "piece of flesh half as long as the little finger." She was still passing small blood-flakes and a considerable amount of mucus in the urine.

February 2nd. Simple cystoscopy. Tumor about one-third original size.

February 9th. Tumor flat and ragged looking. Fulguration again applied.

February 16th and 23rd and March 2nd. Fulguration applied. After the last treatment there was considerable pain and formation of calcareous material, which greatly irritated her urethra, forcing operative interference on March 23rd, when the growth was for the second time removed per urethra, being then nearly the same size as when first seen.

The patient made a quick and uneventful recovery, and visited me on April 27th, about 5 weeks later.

Cystoscopic examination showed rapid recurrence of the growth to its original size. On this date fulguration was again resorted to, and three different areas were burned at one sitting.

The application was repeated on May 4th, 11th, 22nd; June 5th, 12th, 19th and 26th. The tumor, after the second or third application of the high frequency current, became whitish gray in appearance. This coating of dead tissue (for such it proved to be) did not separate and come away after a reasonable length of time, as one would expect it to do, and its presence seemed to protect the live tissue of the tumor, which grew under its protection more quickly than I could destroy it.

The patient became very nervous, suffering from frequent calls to urinate, and at her request on July 1st I operated on her for the third time, removing the tumor by the urethral route.

October 27, 1911. At the present writing she has not returned from the country for treatment, and, as far as I can learn, is entirely without symptoms.

It is my plan, as discussed with the patient at the time of the last operation, to remove the tumor again per urethra, upon her return to town, and within a very few days thereafter to apply the treatment of fulguration in the hope of keeping the growth in abeyance.

In conclusion, I would like to lay emphasis on the following points:

1st. The effect of posture in promoting the flow of urine after the location of the growth was determined by cystoscopic examination.

2nd. The use of the alum solution (Squibb's Surgical Powder) to control bleeding temporarily, thus providing an opportunity for making a cystoscopic examination with a clear field, when otherwise the field would have been obscured.

3rd. Ability to dilate the female urethra to the size of the index finger, without causing even temporary incontinence.

4th. Advantages obtained over the suprapubic operation (as a temporary expedient) with its abdominal wound and the time required to heal.

5th. The value of cystoscopic examination early in bladder conditions, in order that a proper diagnosis may be made, and appropriate treatment employed.

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## THE PRESENT-DAY DIAGNOSIS OF ACQUIRED CUTANEOUS SYPHILIS

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**T**HE diagnosis of lues rests upon a study of four groups of facts: First, those of the history of the case; second, those of its symptomatology; third, those which may be regarded broadly as biological; and fourth, those which come under the head of histopathology. The first is of little value since patients are neither candid nor very observant in respect to their venereal afflictions. The fourth is of value only in differentiation from similar lesions of another nature. The second is the most important, for it deals with the clinical characteristics of the disease. The third is less important, more speculative, newer, and perhaps for this reason, the most interesting. The clinical features of the malady have been made clear through the writings of Hutchinson, Fournier, Sigmund, and Neumann among others. Until 1879, when Neisser discovered the gonococcus, gonorrhea, ulcus molle and lues were regarded as different forms of the same disease. Those who held this view were known as trinitarians. Ten years later when Ducrey established the causal relation between a definite bacillus and soft chancre, lues remained the one infectious venereal disease, the cause of which was unknown. Nevertheless the independence of lues from the other two diseases was thus placed upon a solid foundation. Further support lay in Schaudinn's discovery of the spirocheta pallida in the discharge from chancres, mucous patches and flat condylomata.

Selenew remains unconvinced of the pathogenicity of the

spirocheta. He perhaps stands alone in this belief among those to whose opinion we must defer. Although Koch's law has not yet been applied to the organism, Neisser's investigations and those of others active in the field of experimental syphilis, particularly in its transmissibility to anthropoid apes and monkeys, seem to render unwarranted such doubts and misgivings. Thus Schaudinn began that Augustan era in syphilography to which belong the names of Wassermann, Neisser, Bruck and Ehrlich, and to which we hope may be added that of Noguchi, if his cultivation of the spirocheta and his studies upon the luetin reaction will fulfill their present promise.

We approach the problem of diagnosing a case of syphilis with greatly enriched means. In every instance we must apply our clinical knowledge first, and this will often suffice. Should it not, we employ any or all of the following: the complement deviation test, the search for the spirochetæ in the discharge from or in a section of the lesion, the therapeutic test, the cultivation of the spirochetæ or finally the percutaneous luetin test analogous to that of von Pirquet in tuberculosis. To the last two procedures we are indebted, as already mentioned, to Noguchi. He first reported his cultivation experiments at a meeting of the New York Serological Society in October, 1911, and his luetin experiments at the Ophthalmic Section of the New York Academy of Medicine a month later. Some of his work is familiar to me as it was conducted to a certain extent, in the Dermatological Dispensary of the German Hospital. Its value with its wide possibilities may be enormous, but it is still too new to form an essential part of this paper, and furthermore it belongs to Dr. Noguchi to develop it more fully in its practical aspects. This then leaves for fuller discussion only the Wassermann test, the bacterial examination, the histopathological examination and therapeutic test. A word concerning the value of each of these methods may here be in place. A positive Wassermann test, provided we can clinically exclude lepra, yaws, scarlatina, malaria, and advanced tuberculosis indicates active syphilis. A negative test in a case which clinically resembles lues does not exclude the latter. The presence of the spirocheta pallida in the discharge from a lesion always indicates syphilis. In lesions of the buccal orifice great care must be exercised not to confuse this organism with the spirocheta dentium which is shorter, more regular and contains fewer spirals. In a section prepared by the

Levaditi method, the presence of the organism places the diagnosis of syphilis beyond question. The histopathological examination where the organism is not found is often inconclusive, as the morphology of the lesion is not unlike that of lupus vulgaris, scrofuloderma, erythema induratum of Bazin, some types of sarcoids of Boeck and Darier, tuberculosis verucosa cutis, some tuberculides, all of these diseases being caused by the Koch bacillus or its toxins. A few broad differences exist, but too much weight can not be placed upon them. Syphilides have fewer giant cells, more plasma cells, no caseation necrosis, more changes in the intima and media of the cutaneous vessels than have the lesions of cutaneous tuberculosis. In the latter, too, the tubercle bacillus may be found, but with ease only in the scrofuloderma and tuberculosis verucosa cutis. In the other forms of tuberculosis of the skin, this is so difficult as to be impracticable. Inoculation experiments may be of use. Lepra and lues are not unlike pathologically, but the ease with which the Hansen bacillus can be determined makes a differential diagnosis between these two diseases as easy microscopically as it is clinically, and even the frequency of positive Wassermann tests in the Morbus Biblicus should cause no confusion. A discussion of the therapeutic diagnosis shall be reserved for the final paragraphs of this article.

In its widest aspect syphilis is a systemic disease, the most striking characteristics of which are cutaneous. For this reason it has been grouped with dermatoses. With regard to its severity it runs either the usual benign course or a stormy one to which is given the name of malignant syphilis. With the latter we shall not deal in this paper. The disease begins with a sore at the portal of invasion, known as the primary lesion or chancre. The entire invaded organism then becomes a prey to the spirochetæ and we have a stage of the disease known as secondary. Finally the resistance of the host exceeds the virulence of the invader, limits the latter's activity and the tertiary stage has arrived. Each stage should be determined clinically by the nature of the lesions rather than by the calendar, although the course usually extends over certain more or less definite periods of time, so well known as to need no further mention. The lesions in each stage possess certain peculiarities which, with their differential diagnosis, both clinical and biological, we shall now discuss.

The primary lesion is found in greatest frequency upon or near the external genital organs, next in frequency in the buccal

orifice or its vicinity, and finally anywhere else upon the body. Wherever it exists it must be differentiated from a gumma, cancer, soft chancre, tuberculous ulcer, and when on the tonsil, from Vincent's angina. The chancre may be of the true Hunterian type, superficially ulcerated, papular and desquamating, or finally of the variety known as the indurative edema, found chiefly upon the vulva. In all we have the characteristic painless regional lymphadenopathies and often, particularly with a chancre of long standing, systemic symptoms and a rash may also be present. Usually spirocheta are in the discharge. The Dunkel-feld and Tusch methods are the best and quickest for discovering the organism, and regardless of all the hysteria indulged in regarding the inaccuracies of the latter, it is for all practical purposes the best. Should a search for the trepanoma be unsuccessful the primary lesion can not be positively excluded, but a presumption against it is well founded. In chancroid the presence of the Ducrey bacillus is easily established. In chancre-mixte we find both this organism and Schaudinn's, and when *ulcus molle* exists alone or in conjunction with *ulcus durum* the regional glands are inflamed, painful, tender and prone to suppurate. In tuberculosis we may be able to discover the bacillus, but when unsuccessful in our attempt, one of the accepted tuberculin tests may serve as great circumstantial aid. A biopsy, too, may become of great worth, for the Levaditi stain is usually not disappointing in this lesion and the structure of the chancre is almost pathognomonic. The great perivascular and perilymphatic round and plasma cells infiltrations, the destruction of elastic tissue, productive of inflammation in the arterioles, are all characteristic of the chancre. Especially in ruling out a neoplasm is the microscopical examination our greatest aid. In differentiating between Vincent's angina and tonsillar chancre the question reduces itself mainly to a bacteriological one, and the problem is not difficult. The cryptiform lesions of Vincent's angina, the pus, painful glands, and, as Sodern pointed out at a meeting of the New York Society for Clinical Serology, the relative lymphocytosis serve to clear up the problem.

Multiple chancres present the same factors for study that the single one involves. Though it requires greater finesse in diagnosis, it hardly is of practical importance to differentiate them from flat condylomata or weeping papules. Either single or multiple primary lesions may be simulated by gummata. With



the latter, regional glands usually remain unaffected and there is evidence in scars or other gummata upon the body that the process is not a fresh one. Finally the Wassermann test may be performed. It is positive in about eighty per cent. of all the cases in the first stage, and the more likely to be positive the nearer at hand the secondary period. A negative test here, as almost everywhere else in the diagnosis of lues, is of practically no value.

The important secondary cutaneous syphilides are the roseola, the roseola recurrentia, the large and small papular eruption, known respectively as the lenticular papular rash and the lichen syphiliticus, the ulcerative, the seborrheal syphilide and the annular syphilide. In secondary lues we may have a pigmentary disturbance known as leucoderma. The eruption on the mucous surfaces is also manifold. In the mouth we find mucous patches, ulcers, rhagades of the tongue and lips. About the genitalia and anus, as wherever there is maceration due to the contiguity of two surfaces, either of mucous membranes or skin, we may find flat condylomata or luxuriating papules as well as the varieties of lesions enumerated above.

In this stage three points are to be remembered. There are certain fundamental features common to all of the lesions and certain differential characteristics distinctly separating one type from another, as well as certain systemic conditions which may or may not exist, but which usually are present in a greater or less degree. The systemic disturbances are a general glandular enlargement, a low grade fever, which I have never found lacking where I have been able to watch the temperature, often headache, pharyngitis and pains in the bones and joints. The Wassermann test is positive in virtually all cases of secondary lues and it is only here that a negative result may be regarded as almost excluding this diagnosis. As to the rash it is usually diffuse, always symmetrical and inclined to have the color of copper although not invariably in spite of a tradition zealously maintained in syphilography. The roseola usually appears at about the time of or shortly after the healing of the initial sclerosis. It is a diffuse deep roseate macular rash which must be distinguished from any toxic eruption. The polymorphous erythema particularly when associated with pharyngitis or a drug eruption, notably that of copaiba, may cause confusion. As a rule the localization of the former about the wrists and back of the

hands, and the history, in the drug rash, of internal medication for urethritis will establish the difference. The recurrent roseola is a late secondary manifestation. The macules are large, discoid, at times slightly raised, faintly pink in color, and resemble the macular lesions caused by coal tar products.

The papules of syphilis are raised, dusky lesions, ranging in diameter from three to fifteen millimeters and often surmounted by a delicate area of desquamation, the thin irregular margin of which projects as a white ring about the flat summit of the papule. This fragile scale is known as the collar of Biette. A typical lenticular papule looks like nothing else. Unfortunately, however, certain varieties resemble guttate psoriasis, seborrheal eczema, when the latter is present in small disseminated lesions, and finally pityriasis rosea. Psoriasis is a chronic disease of long standing. The eruption is disseminated and symmetrical and prone to situate itself upon the extensor surfaces of the extremities. Each lesion is covered by a laminated mass of silvery scales and upon scraping the surface of the patch a fine pelicle is removed, whereupon minute purpuric spots appear, each point corresponding to a denuded hyperemic papilla. Histopathologically, the two diseases are distinct. The seborrheal eczema is also scaly, the scales are oily, the lesions are chrome yellow and the disease is highly pruriginous. Here, too, the histology marks the ailment as non-syphilitic. Pityriasis rosea is an acute itching disease of sudden onset. The lesions are oval, arranged upon the trunk, arms and thighs along the lines of cleavage of the integument, and they extend peripherally by a scaly inflamed margin, the center, in healing, leaving a smooth yellow stain. In none of these diseases are the spirochetæ present, nor is there a glandular enlargement or a positive serum test. The small papular syphilide or lichen syphiliticus is rare. It must be distinguished from lichen planus. The latter is intensely itching and presents a characteristic and easily recognizable histological picture. It appears on the backs of the wrists, forearms, over the body, in the mouth and on the lower extremities. The small umbilicated glistening lesions, and not the confluent violet patches, resemble luetic papules. The ulcerative secondary syphilides often simulate ecthyma. The Wassermann reaction and adenopathies clear up the question and the spirochete can be found both in the discharge and sections. The seborrheal syphilide is not rare and is an important picture to bear in mind. It occurs in the naso-

labial fold and consists of slightly scaly, oily, dusky yellow papules. These do not itch nor can the scales be removed as in seborrheal eczema. For corroboration of the diagnosis the various modes in vogue must be employed. The annular lesion is very rare and occurs mostly in negroes.

The luetic leucoderma is usually situated upon the neck, mostly in brunettes. It consists of oval white spots, the borders of which are brown and it is assumed to be due to pigment displacement. A similar phenomenon is observed in psoriasis, but is very rare. Confusion with pigmentary leprides may arise. The association in lepra of the white spots with the nodules, and the ease with which the Hansen bacillus can be isolated, should prevent confusion.

Mucous patches are papules on a mucous surface, the covering of which is macerated, and thus gray. When on the anterior pillars of the fauces, they may resemble Bouveret's ulcers in typhoid. These are small reniform lesions, one situated on each anterior pillar at the junction of the latter with the soft palate. They occur early in typhoid, but the differential diagnosis can be simplified by means of a blood culture and Widal reaction. Rhagades of the lips are due either to syphilis or labial eczema. The diagnosis is one of extreme delicacy, as correct conclusions hinge upon the serum tests and other evidences of lues or eczema. Flat condylomata can usually be distinguished by the papular structure, disagreeable odor and the presence of spirochetæ. The only lesions similar in appearance are those of vegetating pemphigus, and the rarity of the latter, as well as the absence of other signs of pemphigus, should render the differentiation between the two relatively simple.

The tertiary lesions differ from the secondary in that they are fewer in number and not bilaterally symmetrical. They assume the form of papules, gummata or ulcers, and tend to group themselves in an eccentric serpiginous arrangement, progressing peripherally and healing in the center. In color they are a dusky red. They are neither painful nor tender, and the regional glands are at the most slightly involved. The spirochete are absent in the discharge from these lesions, and in section can be discovered only with difficulty. The Wassermann reaction is as often negative as positive, so that here its use in diagnosis is extremely limited. The Weil cobra-venom reaction would probably be of greater service, as it disappears long after the Wassermann test.

Tertiary syphilides resemble chancre, *ulcus cruris*, *lupus vulgaris*, *scrofuloderma*, *lepra*, *bromodermata*, *iododermata*, *sporotrichosis*, *blastomycosis*, and *epithelioma*.

The various points of difference between the primary lesion and tertiary lesion have been discussed. *Lupus vulgaris*, when typical, is easy enough to diagnosticate, although the serum test is occasionally positive in lupus. The small yellowish jelly-like lupus nodule, however, is usually to be found somewhere. Some variety of the tuberculin test may aid in the diagnosis. Other evidences of tuberculosis may be present and a rhinological examination frequently reveals a tubercular process in the mucous membrane of the nose. Although *lupus vulgaris* may occur anywhere on the body, its site of election is on or near the nose. Tubercle bacilli are sparse in sections. A better procedure than that of microscopical examination would be the inoculation of a guinea-pig with the infected tissue. The problems involved in *scrofulodermata* are similar, but the relation of these to a deeper tubercular process such as one in the subjacent glands or bones should materially clear up the question.

*Ulcus cruris* is definitely correlated with varicosities and eczema. The lesions need not but may be multiple, have ragged and undermined borders, while the tertiary lesion has a steep margin, is more frequently multiple than single, and outside the ulcer small gummata may be found. The syphilitic ulcer, too, is reniform in contour, or fan shaped, and highly resistant to non-specific therapy such as will usually, at least for the time being, heal an ordinary leg ulcer. *Lepra* is as easily distinguished from tertiary as from secondary syphilis and along the same general lines. From *iododermata* and *bromodermata* the differentiation may be more difficult. In the former it is particularly likely to be so since iodides are given only in lues in sufficient quantities to produce an iodide tumor. The presence of iodine in the urine and an iodide acne should place the diagnosis beyond peradventure. It is only in epileptics or neurotics where bromides have been over-administered that the *bromodermata* develop. Here a careful history and urinalysis should solve the problem. Clinically these two conditions closely simulate a luxuriating gumma and only astuteness and a constant recollection of this possible source of confusion can avoid error. Histologically these lesions resemble granulation tissue more than does a gumma, and the vascular changes present in the latter

are wanting in the former. Epithelioma, greatly as it may resemble a gumma or a tertiary ulcer, can easily be diagnosed by means of a biopsy. Clinically the more pronounced involvement of the regional glands, the singleness of the lesion and the pearly margin, are the neoplasm's most striking features. On the tongue an epithelioma most frequently causes diagnostic difficulty. If, however, the above characteristics are considered and to them are added the fact that cancer most frequently occurs on the side of the tongue at the junction of the anterior and middle thirds, and that it is accompanied by pain in the ear on the corresponding side, the difficulties of the problem wane. Gummata of the tongue are usually multiple, situated on the dorsal surface, and are painless. In one group we may consider sporotrichosis, blastomycosis and deep trichophytosis. Clinically they strongly resemble tertiary ulcers and gummata. The case with which the specific organisms causing each of these can be discovered and cultivated, renders their diagnosis a simple matter.

In the foregoing it has been attempted to outline the general methods to-day in vogue in the diagnosis of lues and to enumerate the commoner conditions from which this disease must be differentiated clinically and by other methods. A discussion of this sort, however, would be incomplete without some allusion to therapeutic diagnostic method which has fallen into a certain, perhaps well merited, disrepute. To conclude that because a certain lesion does or does not yield to anti-luetic treatment, it is or is not syphilis, is crude logic. In the light of recent advances in our knowledge of the disease and its therapy, notably in the Wassermann test and in salvarsan, we can approach the question from a new angle. To this end I should like to devote the few ensuing paragraphs.

On August 26th, 1911, a South American was referred to me. His home physician had pronounced him syphilitic. Five months before he had had a slight eruption on his alae nasi and palms. He denied a primary lesion, and had had no systemic disturbances. It was to have the diagnosis settled that he came to New York. The examination was negative as to adenopathies, syphilides, fever, etc. In the middle of his lower lip, however, he had a small impetiginous lesion, superficial and soft. Wassermann tests made on August 26th and September 11th were negative. At his own request, against my convictions, I was

induced to give him an intravenous injection of salvarsan. The argument that in South America he would be far from adequate medical aid, combined with the resistance of his labial sore to all ordinary treatment, overruled my opposition to this treatment, which he received on September 25th. In three days his lip was well, and five days after the injection his serum test was strongly positive. He has since returned home with full instructions for further treatment.

The points to be noted are, first, that clinically syphilis could not be diagnosticated in this case; second, that after an Ehrlich-Hata injection a previously negative Wassermann became strongly positive, thus elucidating an unclear symptom complex. This fact is now getting more and more attention in the literature. It is called the provocative Wassermann reaction, and it merits thorough consideration in our work of diagnosing lues.

The probable explanation of the phenomenon is this. The drug, by destroying the spirochete, caused their endotoxins to be liberated in such quantity as to increase the antibodies sufficiently to render their detection possible by the complement fixation method. Further study of this entire matter might show that obscure cases are capable of being cleared up by this very simple combination of the Wassermann test and a salvarsan injection. The therapeutic diagnosis of lues would be rehabilitated, and the benefit to the patient would justify the procedure.

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Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

### AN IMPROVED UROLOGICAL EXAMINING TABLE

By LEO BUEGER, M. D., and A. HYMAN, M. D., New York City.

**I**T has doubtless occurred to many of those surgeons who have occasion to make many cystoscopic examinations, that almost all of the so-called office tables have certain shortcomings that make them unsuitable both from the standpoint of the patient's comfort and the needs of the operator.

Thus in the ordinary table when the patient is put in the lithotomy position and the back rest is elevated, a triangular space is formed above bounded by the patient's back, the middle and head-piece of the table. The patient's back is lifted away, the support being taken up wholly by the buttocks and shoulders. This, alone, makes the position exceedingly hard to bear. Added

to this, there is, as a rule, the distressing cramp in the legs to contend with, when the limbs are sufficiently separated and raised to give access to the surgeon. For, most of the leg rests are designed either to support the knee or the foot, the former arousing discomfort in the popliteal space, the latter giving too little support and causing pain in the thighs.

From the examiner's point of view, not only must the patient be put at ease, and in a posture that allows proper approach, but two other features, namely the drainage and the foot piece of the table ought to be suitably constructed.

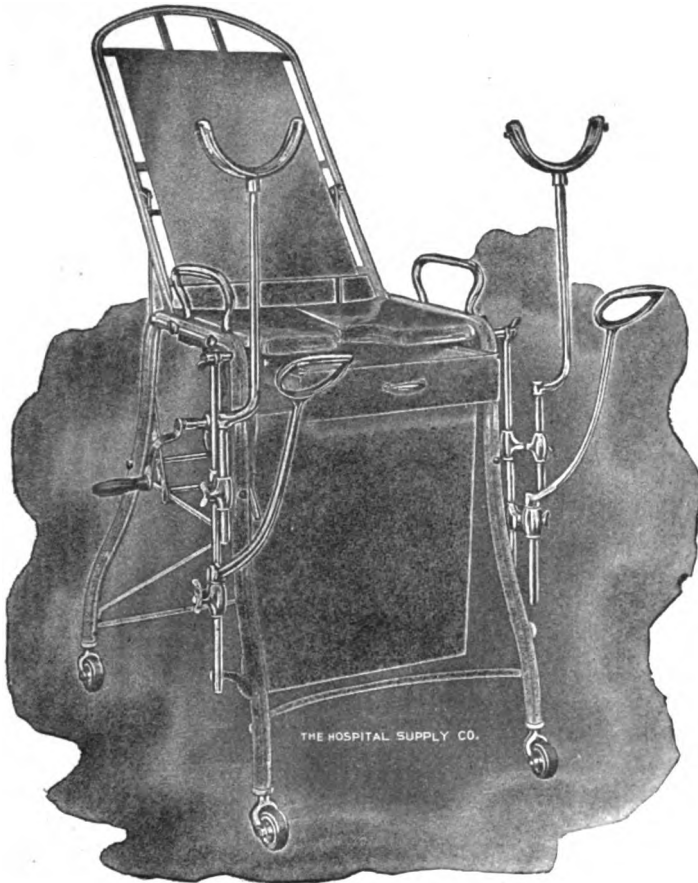
About a year and a half ago, mindful of these facts, we remodeled one of the Berlin urological tables in such a way as to eliminate, as far as possible, most of the objectional features so common to the ordinary operating and examining table.

Referring to the figure it will be seen that the middle plate has been so shortened that when the buttocks and perineum are at the observer's edge and in position for elevation of the limbs, the head and back piece may be raised without the contact of the back being lost. The perineal incisure in the plate too, has been made sufficiently large so that drainage may not be interfered with.

As for the support of the limbs, a double rest which takes care of both knee and foot, was found to answer the purpose best. These holders move independently on a perpendicularly placed rod attached to the fore-legs of the table and can be raised and lowered at two points. At the joint in which the rests themselves move, an additional point of rotation is secured, and a forward and backward movement of the support sufficient for the purposes of adaptation are obtained. The leg plate has been so hinged that when it is dropped it recedes sufficiently to give the operator plenty of room for his knees. In this way the annoyance of removing the foot piece for cystoscopic examination is abolished.

Finally we may call attention to the construction of the drainage pan which is set in a steel carriage frame, so that it will slide easily in supporting ledges under the middle piece. Being capacious, it will hold as much fluid as may be required in the most difficult and prolonged examination, obviating the necessity of establishing drainage connection with a pail under the table. When desired, the pan may be emptied by removing a plug, which may be placed either in the rear of the basin or

towards the observer. In addition to the large size and easy riding of the drainage apparatus, another important feature has been added, namely the possibility of drawing out the carriage to such a distance that the most spasmodic action of the bladder



will not project the solution beyond the limits of the pan. This has been accomplished by a simple backward extension of the sliding runners of the frame.

We have found that a table embodying these characteristics, can be manufactured at a suitable cost, that it is not complicated to manipulate, and that it gives much comfort both to the patient and the operator.



## REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman  
and Walter J. Heimann

### ZEITSCHRIFT für UROLOGIE

Vol. V, No. 12, 1911

1. A case of Systemic Gonococcus Infection. By B. N. Cholzow.
2. Nephrectomy followed by Urinary Fistula. By J. P. Haberern.

1. **A Case of Systemic Gonococcus Infection.**

A localized gonorrheal process may become generalized and appear in two forms:—with limited focal involvement of parts of the body far removed from the original site, and in the form of a bacteriemia, that is a systemic infection with metastases. Although the first of these clinical types is rather common, the second is relatively rare, the author having been able to collect but 8 cases of gonococcus bacteriemia in the literature of the last 10 years.

The author recounts in detail the history and clinical course of a case which was remarkable because of the good recovery. After the development of joint manifestations, and a prostatic abscess which was drained per rectum, the temperature remained still high so that a blood culture was taken. Gonococci were isolated in pure culture. The patient was given a series of injections of gonococcus vaccines and also inunctions with unguentum Cr  d  . Six injections of the vaccine were used with very striking improvement of the patient's condition, so that a month after the incision of the prostatic abscess, the patient was considered well enough to be discharged from the hospital. Soon after his dismissal, however, it was found necessary to readmit him in order to evacuate some retained pus. A months later he left hospital apparently cured.

2. **Nephrectomy Followed by Urinary Fistula.**

Haberern describes an interesting complication following removal of a kidney for tuberculosis in the case of a young man who suddenly developed a urinary fistula in the nephrectomy wound. Simultaneously with the appearance of a urinous discharge from the wound, the urine in the bladder diminished greatly in amount. This condition persisted for about a month, the closure of the fistula having been aided by the employment of a permanent catheter for vesical drainage.

The author was able to find but a single case of this nature in the literature. In the observation here recorded, the ascending theory of infection of the urinary tract can find weighty support. Since the author's paper was written, three additional cases in which the urine of the intact kidney was discharged through the nephrectomy wound, have been described. In one of these cases practically all of the urine was voided through the upper end of the detached ureter, and resection of the ureter was finally found necessary to effect a cure.

ANNALES DES MALADIES GÉNITO-URINAIRES

Vol. XXIX, Sect. II, No. 23.

1. International Congress of Urology.

This contains the complete reports on the following subjects: Phosphaturia and Oxaluria by Teissier (Lyons), Richter (Berlin), and Hogge (Liege). Remote Results of Prostatectomy for Prostatic Hypertrophy, by Pronst (Paris), Zuckerkandl (Vienna), and Young (Baltimore). These reports were abstracted in the January issue of the Journal.

FOLIA UROLOGICA

Vol. VI, No. 6, Nov., 1911.

1. Diabetes Insipidus and Arrested Development, with Observations on the Differential Diagnosis of Diabetes Insipidus. By H. Strauss.
2. On the Behavior of the Urinary Coefficient after Nephrectomy. By G. Bonzani.
3. Concerning the Biological Relationship between the Prostate and the Sexual Glands. By A. Götzl.

1. Diabetes Insipidus and Arrested Development.

The author reports two cases of diabetes insipidus associated with arrested development, and also mentions some cases recently reported in the literature. In the first case there was hypoplasia of the genitals, abnormal adiposity, and distribution of the hair over the genitals as in the female. Eight litres of urine of a specific gravity of 1,002 were passed daily; there was marked polydypsia. The second case, in addition to the hypoplasia and marked polyuria, showed a certain grade of infantilism. Strauss regards these cases as anomalies of internal secretion. Fröhlich has called attention to the association of diseases of the hypophysis with hypoplasia of the genital organs, and deficient development of the sexual characteristics and the infantile habitus, and has called this condition dys-trophia adiposogenitalis. The author also considers it possible that diabetes insipidus may be due to the same cause, that is, to a disturbance of hypophyseal or pineal secretion. For differentiating diabetes insipidus from polyuria of nervous origin, the author uses his method of testing for alimentary chloruria. One-half litre of water with 10 gm. of saline solution are given on an empty stomach, the urine is then collected for the next five hours and examined for specific gravity, freezing point, and percentage of NaCl. In diabetes insipidus there is an increase in the amount of urine secreted while the specific gravity, freezing point and NaCl are very slightly influenced; in a psychic polyuria the reverse holds true.

2. On the Behavior of the Urinary Coefficient after Nephrectomy.

In unilateral surgical affections of the kidney, compensatory

hypertrophy slowly develops in the healthy kidney, so that should nephrectomy be necessary, the remaining kidney is capable of carrying on the extra function imposed. In order to determine the variations in renal function after nephrectomy, the following experiments were made. Four normal individuals and four with unilateral kidney affections (2 due to tuberculosis, and 2 to lithiasis) were selected as subjects. The body weight was taken and the patients kept under analogous hygienic and dietetic conditions. The total 24 hour urine was then collected and examined for quantity, density, total acidity, urea, uric acid, chlorides, phosphates, sulphates and molecular concentration. It was found that there was practically no difference in the urinary coefficient as expressed by the above tests between the normal and diseased individuals; in other words, compensatory hypertrophy had already taken place to such a degree in the healthy kidney that it took on its extra burden without influencing to any extent the total renal activity. Twenty days after nephrectomy had been performed, normal relations between excretory products obtained. The greatest fluctuations in renal activity take place within the first 4 to 5 days. From the 5th to the 8th day there is such an increase in the renal activity that the function is more marked than before the operation. From the 10th day on a balance is slowly regained. Considering the unusual circumstances in which the patient is placed by operative interference, and the abnormal hygienic and dietetic conditions, it is surprising to note that the function of the remaining kidney should be so slightly disturbed.

### 3. Concerning a Biological Relationship between the Prostate and the Sexual Glands.

The author undertook a series of experiments to determine the question of the toxicity of prostatic tissue, in the hope of clearing up certain symptoms observed in prostatic cases. As the work progressed, however, the subject took on a much broader aspect in that the biological relationship of the prostatic tissue to the sexual glands was tested from an anaphylactic point of view.

The experiments of various authors had proven that normal animals often succumb after manifesting the phenomenon of anaphylaxis and after injections of substances derived from the sexual glands. Götzl used very small doses of gland tissue and control tests were made on normal guinea pigs. The sensitizing of the animals was produced by intraperitoneal injections of the juice of guinea pig's prostates, human testicles, bull's testicles and prostates, human sera, and the emulsion of tablets of pig's prostates. Secondary injections were made in 3 to 4 weeks intraperitoneally and intravenously. The author concludes as follows: The organo-specificity of the glands is a general one, and acts upon the glands of both sexes. The testes, ovaries and prostate seem to possess a common

albuminous substance which has the power of sensitizing. The juice of one of these glands can sensitize not only itself but also the other sexual glands. The testes seem to possess the largest percentage of this sensitizing substance. This substance is also found in the blood and it is probable that the blood obtains it from the sexual glands and the prostate.

## ANNALES DES MALADIES VÉNÉRIENNES

### Vol. VI. No. 12.

1. Case of Death Five Days After an Injection of Salvarsan. By H. Oltramare.
2. Fatal Poisoning by Arsenobenzol. By Dr. Caraven.
3. Antiluetic Therapy and the Wassermann Test. By Drs. H. Gougerot and F. M. Parent.
4. Intravenous Alkaline Salvarsan Injection in Aqueous Suspension. By Drs. Lévy-Bing and L. Duroeux.

#### 1. A Case of Death Five Days After Injection of Salvarsan.

The author's case was a patient, 48 years of age, who was treated in 1909 for ulcerated gummata on the legs, by injections of mercury biniodid, and iodides internally. On August 16, 1911, heart and kidneys found normal and 0.6 g. of salvarsan in 300 c. c. solution were injected intravenously. Four days later, having felt well during the interim, he began to complain of headache and the next day was found cyanosed and in a convulsion. Two days later after an injection he was transported to the hospital where he died with symptoms of pulmonary edema and temperature of 105°. The autopsy showed ordinary regressive senile changes in heart vessels, lungs and kidneys. Citations from the literature of similar instances, all of death with above symptoms and identical post-mortem findings. Explanation—flooding of the body with specific endotoxins.

#### 2. Fatal Poisoning by Arsenobenzol.

Patient 21 years old, entered Hotel Dieu September 15, 1911, with a primary lesion on penis, inguinal adenopathies, but without other syphilides. On October 18, 0.6 gm. of salvarsan intravenously in 400 c.c. of solution under utmost asepsis. October 18 another similar injection. A day later severe headache. October 22 coma, stertorous breathing, pulse 112, no fever, involuntary micturition, myasthenia, albuminuria. Lumbar puncture fluid sterile. Examination of eyes showed ulcerated keratitis, moderate hyperaemia of papilla. Death with rising fever, respiration 48.

Autopsy—Cerebral engorgement, pulmonary congestion, gastric hemorrhages.

#### 3. Antiluetic Therapy and the Wassermann Test.

A long and excellent discussion of the relation of treatment to this serum reaction for syphilis. Review of this valuable paper is impossible because of its length.

## 4. Intravenous Alkaline Salvarsan Injection in Aqueous Suspension.

The authors give a detailed analysis of the advantages and disadvantages of alkaline and acid suspension with the description of how to prepare the substance for injection. Charts of four cases showing the action of the drug. The alkaline insoluble suspension of the drug, intravenously administered is considered the method of election.

## ANNALES DES MALADIES VÉNÉRIENNES

Vol. 7. No. 1.

1. A Year's Experience with "606" in the Venereological Clinic de l'Antiquaille de Lyon. By Drs. Nicholas and Moutot.
2. Two Cases of Icterus Following Intravenous Salvarsan Injection. By Lévy-Bing and Duroeux.
3. Results of Confidence in Treatment by "606." By Dr. Broquin.
1. A Year's Experience with "606."

Drs. Nicholas and Moutot have correlated their experience with salvarsan into an excellent article which merits careful study in the original. Their syphilitic material treated with "606" consisted of 162 patients of whom 42 were women and one a child. These patients were treated from November, 1910, to September 20, 1911, and since then up to the writing of this article 50 more were treated.

I. *Technique.* The 162 patients received 352 injections, 12 of these were in insoluble suspension, 10 in the neutral suspension of Wechsellmann, 2 in oil; 32 soluble intramuscular injections were given, 15 of which were alkaline, 17 acid; 318 injections were given intravenously in alkaline solution. For the intravenous method both Ehrlich's and Billons' salvarsan were employed, no difference in effects having been noted. Billons' preparation was more easily soluble, particularly upon the addition of a few drops of alcohol.

A. Insoluble preparations according to Wechsellmann. The neutral suspensions were found to work more actively and quickly. They were usually painful, became encysted but never caused necrosis. On account of Jambon's unfortunate experience, this method was abandoned.

B. Oily suspensions were well tolerated but found slow in action and inclined to become encysted.

C. Intramuscular injection of solution. The alkaline solution was prepared as for intravenous injection, the acid solution was made up as in the first steps of the intravenous, but alkali not added. From 5 to 16 cm. of the solution containing a maximum of 0.6 salvarsan were injected into the buttocks, one-half being injected on each side. There was always pain for several nights, never any abscess formation although this was sometimes threatened. A few

cases had local symptoms resembling neuritis which lasted, in one instance, for a month and a half.

D. Intravenous method. In 318 cases, the directions given by Ehrlich were implicitly followed. Hyperalkalinization was not found dangerous and rather preferable to the use of too little alkali. When infiltrations resulted there was only pain, no abscess formed and necrosis never occurred. Wet dressings were the best treatment of infiltrations.

II. *Therapeutic Results.* In 162 cases, 12 of which were non luetic, may be grouped as follows:

A. Of the non luetic cases there were 4 cases of neoplasm, 4 of psoriasis, and 4 cases of lupus vulgaris. No effect was noted upon the tumors. In one case of psoriasis there was slight improvement, but a second injection did not further this apparent effect. Of 4 cases of lupus one was cured, and 3 were in no wise affected. One of the neoplasm cases also had a chronic eczema which was not influenced. In one of the luetic cases an accompanying acne keloid remained uninfluenced.

B. Syphilis and Parasyphilis. 150 cases. 21 of these were primary lues, 27 were primary with beginning secondary. 72 were various forms of secondary lues, 13 of tertiary lues, 10 of tabes and paresis, 3 congenital lues.

(a) *Chancere.* There were 48 chancres and chancres associated with secondary syphilis. The involution was certain but not rapid and never in less than from 7 to 10 days, the average being 20 days or more. The dorsal lymphangitis of the penis disappeared in three weeks. It usually took several injections to cure the chancres and adenopathies. When the chancres were associated with the secondary rash, the rash would disappear more rapidly than the primary lesions.

(b) *Secondary Lesions.* There were 30 cases of roseola. The rash disappeared in from 2 to 5 days and usually after one injection. There were 22 cases of lenticular papules, the disappearance of which took about three weeks. In the miliary papular form, the so-called lichen syphiliticus, of which there were 6 cases, the results were very rapid and this is a great advantage as this type is usually very resistant to mercury. The papulo-squamous palmar and plantar lesions of which there were 3 cases were cured in from 3 weeks to a month. 14 examples of papulo erosive syphilis vanished in from 2 to 6 days. The papillomatous vegetating or flat condylomatous types were cured within two weeks. In the papulo- and pustulo-ulcerous, of which there were 8 cases, the results were striking. In secondary malignant syphilis, of which there were 7 cases, the cure was effected in from 15 to 20 days, except in two instances where the lesions remained uninfluenced. 19 cases of mucous

patches on the genitalia and 22 in the pharynx were cured in from 5 to 10 days. The syphilitic leucoderma of which 4 cases were observed remained refractory even after 6 months. 6 cases of alopecia were cured slowly within 2 months. 1 case of ulcerative specific paronychia was quickly cured as was also one of the dry form. The second case of the latter type remained unaffected. Osteo-periostitis cases of the tibia, femur and temporal bones disappeared in several days but the pain vanished in 24 hours. In iritis, of which there were 2 cases, a transitory cure was effected but a recurrence was noted within a few days. The general condition of the patients improved, they gained in weight, felt well, their red blood cells increased in quantity and contrary to expectations instead of a leucocytosis a leucopenia was observed. The headaches were cured.

(c) Tertiary. 13 cases. Ulcerating gummata of leg, 3 cases, 1 cured, the rest obstinate. Tubero-ulcerous lesions, 2 cases cured in a week. Nasal gummata better in from three to four weeks. Pharyngeal gummata cured in eleven days as were also subglottic infiltrations. Periostitis of the tibia with gummata of the glands and urethra cured in twelve days.

(d) Parasyphilides. 4 cases of tabes, 6 cases of paresis, 0.4 injected at intervals of a week. No cures. In one of these cases an associated leucoplacia of the tongue was partly improved after 4 injections.

(e) Congenital Lues. 3 cases. One of Parrot's type, 1 case of osteomyelitis, 1 of scrofula type are unimproved.

III. *Preventive Effect.* Secondary outbreaks are not prevented. Recurrences are frequent.

IV. *Bad Effects.* No cumulative and no anaphylactic bad effects were noted. In spite of employing fresh distilled water in all of the cases, a certain number of them had chills, fever and syncope. With the 318 injections given there was no reaction in 122. In the remainder, mild fever, slight chills, vomiting and mild diarrhea were observed. There was no death due directly to "606." Of the 3 cases that died during treatment, 1 had tuberculosis, 1 had a lingual carcinoma, and 1 was an infant, with Parrot's disease. Still there is some danger such as severe collapse and shock. Chills are frequent and were present in 41 of my cases, some were very slight, others quite severe. They would start in from a half hour to ten hours after injection and disappear after twenty-four hours, frequently, too, there was fever as high as 104°. This would usually start in at night and disappear the morning after injection. Occasionally there was repeated vomiting. In one case of tabes the gastric crises were more severe. Other symptoms noted were headache, abdominal cramps, one case of arthralgia, on case of retention of urine, one of albuminuria, one of optic neuritis, frequently diar-

rhea usually consisting of two to three stools a day, but often six to seven. They last at the most 10 to 15 days. At times eruptions occurred. A few cases of Herxheim's eruption were observed. There were 2 cases of scarlatinoid and one of rubeoloid erythema, one of purpura, one of polymorphous erythema. Four cases of herpes. As regards other minutiae such as the indication or contra-indications and dosage of the drug, no great time need be spent in this review, as the authors' conclusions were those at present accepted by syphilographers in general. The authors have reached the following general conclusions.

#### CONCLUSIONS

1. The intravenous method is the best.
2. The action of "606" is indisputable although in para-syphilitic manifestations, leucoplacia and pigmentary syphilis it is inert.
3. Its prophylactic value is very feeble although we should like to reserve judgment concerning its use in the abortive treatment of chancre.
4. "606" may be dangerous even when perfect technique is employed and in spite of absence of contra-indications. Certain cases of death have already been reported. Nephritis and optic neuritis as well as other bad results are on record.
5. Its slight prophylactic value and the possibility of accidents should limit our use of the drug only to actual indications for its employment. These are sterilization of the syphilitic when his chancre appears; intolerance of mercury, and the necessity of quick and strong results either in severe cases or when rapid action is required.
6. The dosage should be between 3 and 4 centigrams, rarely as much as 6, although the higher the dosage it is infinitely more curative.
7. One is never justified in regarding the patient as definitely cured. The accepted mercurial treatments should be used as adjuvants to Salvarsan. "606" will never supplant mercury in the treatment of syphilis, although it should often be associated with it.

#### 2. Two Cases of Icterus Following Intravenous Salvarsan Injection.

Doctors Levy-Bing and Duroeux report 2 cases, one occurring in a young woman, the other in a young man in both of whom icterus supervened after two injections of salvarsan. In the young woman it lasted about three weeks, in the young man about one week. It set in about three days after the injection.

#### 3. Results of Confidence in Treatment by "606."

Broquin relates the ill effects of over confidence in the curative value of "606." One case was that of a young woman with all of the classic marks of secondary syphilis. She was apparently cured



by "606" and returned to her home, pursuing her occupation of prostitute thinking herself well; she infected several people. The second case, an analogous one, is that of a young man desiring to marry. Having been infected with syphilis he received salvarsan and considering himself cured felt justified in marrying; he infected his wife.

### MISCELLANEOUS ABSTRACTS

#### A Case of Cryptogenetic Sepsis Cured.

R. Picker (*Med. Klinik*, Nov. 26, 1912). The author cites this case as being of interest in that it is representative of a group of cases following gonorrheal infection, and masquerading under various and false diagnoses, such as chronic rheumatism, cryptogenetic sepsis, etc. These patients wander about for years, undergoing all varieties of treatment with no apparent result until the proper diagnosis is finally made and a cure established.

A patient, 32 years old who had his first attack of gonorrhea 11 years previously and was apparently cured after 6 weeks, developed symptoms in the right hip some 5 years later. Then again three and a half years ago, the old gonorrhea recurred in a very severe form, with periurethral abscess, cystitis and prostatitis as complications. Coincident with these both hips and legs and shoulder articulations, the right knee joint, the small joints of the feet and the right subachilles bursa became swollen and painful. Finally endocarditis developed. The patient was kept in bed for one year, and for 10 months his gonorrhea was treated with injections and bladder irrigations. For a long time after leaving bed the patient walked around with the aid of crutches. One and a half years ago there was a recurrence of the same joint symptoms, the right Achilles bursa being especially involved. Nine months ago he developed a severe iritis which was cured in six weeks. During all this time the patient has had many forms of treatment including baths, hot air applications, electricity and massage of the joints.

On examination by the author the patient was found to be in a very emaciated condition; the joints which had been involved showed chronic inflammatory changes; the heart was negative. The urine was clear in three portions, with shreds in the first, and gave a positive pus reaction. Both seminal vesicles were enlarged and hard; the prostate was normal in size but there were a few pus cells in the secretion. Cultures of the shreds, and prostatic and vesical secretions were negative for gonococci but showed the presence of numerous staphylococci, streptococci and pseudo-diphtheria bacilli. As the massages which were administered every other day progressed the discharge from the vesicles became thicker and more purulent. After the first massage the patient developed a few joint symptoms, which

disappeared after 24 hours. At the end of a month's treatment many of the joints which had been previously affected again became involved accompanied by moderate pyrexia. For the next four months the patient's condition for the better progressed steadily, with some joint recurrences now and then. The last examination showed the man to be in excellent physical condition, the vesicles were practically normal to palpation with scarcely any discharge. All joint symptoms had disappeared and cultures showed fewer colonies of the organisms above mentioned.

The case is regarded not as one of urogenital cryptogenetic sepsis but an infection originating from seminal vesicles, at first gonorrheal, and later becoming complicated by post-gonorrheal saphrophytic bacteria.

#### A New Operation for the Fixation of the Kidney.

F. McKelvey Bell (*N. Y. Med. Jour.*, January 20th, 1912). Bell delivers the kidney through a posterior vertical incision  $3\frac{1}{2}$  inches to the outer side of the vertebrae. After freeing the kidney of fat internally, externally and posteriorly but not inferiorly, he inserts two sutures after the manner of Brödel, at either pole of the kidney at the external and internal borders, the needle being left on each.

Two parallel incisions, one and one-half inch in length and one inch apart, are now made longitudinally through the renal capsule and the intervening capsule is elevated from the cortex by blunt dissection. The kidney is now returned to its fossa and is held in position by means of gentle traction made by an assistant upon the untied sutures. A strip of the transversalis fascia corresponding in width to the length of the elevated portion of the capsule, is now cut and passed as a strap beneath it and is sutured with chromicised catgut to the corresponding portion of the special attachment of the fascia. The kidney now suspended by a strip of fascia is further reinforced by passing the Brödel's sutures through the quadratus lumborum in the usual manner and tying them over the muscle. The wound is closed as usual. The patient is left in bed three weeks, until adhesions have formed between fascia and the capsule and cortex of the kidney.

#### Treatment of Prostatic Obstruction.

E. Smith (*Amer. Jour. of Sur.*, January, 1912). The degree of success attending the treatment of prostatic obstruction depends upon three principal factors, according to Smith:—(1) The time in the course of the trouble that the patient comes for treatment; (2) a clear knowledge and understanding of the conditions by the surgeon; and (3) the care of the patient before, during and after the operation. Prostatic patients are often allowed to go on for months and

years under temporizing treatment, until the opportunity for proper treatment has passed. When the prostate has become malignant or the kidneys greatly damaged from back pressure or infection, operative treatment is usually contraindicated.

Hypertrophy of the prostate is not synonymous with prostatic obstruction. Conditions of the prostate other than hypertrophy may and do cause obstruction to the outflow of urine. Very often the aid of the cystoscope is necessary to show the cause of obstruction, to eliminate a calculus, or to define an intravesical enlargement that is not palpable by rectum.

Contraction of the vesical neck is best relieved by a removal of the bar through a median perineal incision, a section of the bar being removed with scissors or punch. The small hard fibrous prostate requires the best surgical judgment and skill to produce satisfactory results.

Removal of the large adenomatous gland is usually not very difficult and results are satisfactory. The obstruction must be entirely removed, otherwise the patient will continue with the distressing symptoms he had before the operation.

In cases of malignancy which have progressed until a radical operation is out of question, the patient can be made comfortable by the introduction of a suprapubic drain after suprapubic cystotomy has been done under local anesthesia.

There are three distinct periods of a cure. (1) The pre-operative period when the patient is carefully studied and prepared. The general physical condition should be improved and the functional activity of the kidneys accurately ascertained at this stage. The author has found the phenolsulphonephthaleine test thoroughly reliable. Water is given freely, as also good nourishing food during this period which may last several weeks.

(2) The operation under ether, or nitrous oxide oxygen anesthesia is performed as rapidly as is consistent with good work.

(3) Following the operation the patient is given oxygen inhalations, saline by hypodermoclysis and per rectum and fluids freely by mouth.

#### The Diagnosis and Therapy of Renal Tuberculosis.

H. Hohlweg (*Münch. Med. Woch.*, Dec. 19, 1911). The author considers the various means of diagnosing tuberculosis of the kidney arriving at the following conclusions: The demonstration of the tubercle bacilli in smears is often unsatisfactory and therefore unreliable, though of late the results with the antiiformin method have been more satisfactory. In 20 cases of renal tuberculosis, the smears showed tubercle bacilli 17 times. Tuberculin injections are only of value when there is a local reaction (pain in the affected kid-

ney with dysuria) for a general reaction may be due to a pulmonary condition or some other concealed focus. Birnbaum advises large doses and gives old tuberculin in doses of 1-3-6 and 10 mg. with two day intervals. The author obtained but one positive local reaction in 18 cases; the dose however was never higher than 0.001 gm. Von Pirquet's skin test is of no value in the diagnosis of renal tuberculosis. The Calmette reaction according to Paschkis and Necker is of more value, for, if tuberculosis of other organs can be excluded, a positive reaction would be strongly in favor of a renal tuberculosis. The reaction was positive 40 times in a series of 44 cases. The author's results with the Calmette reaction have not been so satisfactory. In a series of 17 cases, 4 gave positive results, 2 were weakly positive; and 11 were negative. Cystoscopy and ureteral catheterization are indispensable and often give the first evidences of the disease. Animal inoculation is the most certain method; its only disadvantage being the length of time involved, for even with the newest methods at our disposal, 9 to 14 days must elapse before a report is obtained. As regards therapy, early operation is advisable for all unilateral cases. For those patients who have refused operation, and for those who are too far advanced, the author has used tuberculin with good results. He uses old tuberculin beginning with 0.00001 g. and increasing 1-100 mg. at each dose up to 1-10 mg.; from here each successive dose is increased 1-10 mg. up to 1 mg. Maximal doses were between 0.01 and 0.026 mg.

#### Observations on the Persistence of Gonococci in Male Urethra.

Edw. L. Keyes, Jr. (*Amer. Jour. Med. Sciences*, January, 1912). Keyes believes that the gonococcus does not persist in the male urethra for more than three years, while in at least 90 per cent. of cases it disappears, with or without treatment, within a year. In discussing the question of the determination of the presence or absence of gonococci, the author puts patients coming to him for a decision, into four classes.

1. Patients who have apparently been cured for at least three months, in whom there is an absence of purulent shreds and free pus in the morning urine, and in whom no pus can be found in the secretion of prostate and urethra.

2. Patients, in the same condition, but where probation of three months has not elapsed, a bacteriological examination, after a lapse of two weeks without treatment, being negative.

3. Patients with pearly morning drop, who show purulent shreds but practically no free pus in the expressed prostatic and vesicular secretions.

4. Patients with free urinary pus, which, in chronic cases is usually derived from the prostate and vesicles.

For the clinical examination, the patient partially empties his bladder, submits to thorough prostatic massage, delivers a drop of the expressed secretion upon a slide, and then empties the bladder. The following examinations for pus are then made: (1) the discharge, (2) shreds fished from first urine, (3) centrifuged first urine, (4) expressed prostatic vesicular secretion, and (5) centrifuged second urine.

The pathological diagnosis, as employed by the author, is carried out as follows:

(1) Sometimes the patient takes a smear of the morning discharge.

(2) The urine is retained for several hours if possible, the glans penis is washed, and the patient passes a part of his urine into a large sterile test-tube.

(3) The prostate, vesicles and membranous urethras are massaged, and the remainder of the urine passed into a sterile test tube. This is centrifuged, examined and cultures are made.

The most competent bacteriological examination may leave the clinician in doubt, for a time at least, and require, if only to save time, laboratory information of another sort. Keyes has found the complement deviation test singularly accurate. A positive blood reaction should not be sought until the gonorrhoea has persisted long enough to produce such a reaction. This usually requires a month.

A chronic gonorrhea, especially if severe, may or may not leave a persistent reaction for a period of weeks or months, the limitations of which have not yet been determined. The complement deviation test proved wrong in one examination out of 47; the bacterial examination, once in over 100 examinations.

The author has never known the gonococcus to survive in the male for more than three years. He recollects but one instance in which a year's treatment failed to free the urethra of gonococci.

#### **Fat Stone of the Urinary Bladder.**

C. Adrian (*Strassburger Med. Zeitung*, No. 6, 1911): The patient, a male, operated on 15 years previously for vesical calculus, continued to have cloudy urine and frequency of micturition. For three weeks the symptoms had increased in severity and hematuria developed. Twelve days before admission to the clinic the patient catheterized himself three times using a soft rubber catheter with lard as a lubricant. Because of urinary retention the patient sought admission to the hospital. Cystoscopy showed an object about the size of a large nut, resembling a phosphatic calculus, attached to the upper wall of the bladder. Suprapubic cystotomy was done and a small date-sized mass was removed. This object was very light, floating on the surface of the water, and was covered with a thin

phosphatic crust. A section of the interior of the pseudo-calculus was made and the interior proved to be composed of a homogeneous, shining, yellowish substance, soluble in ether and burning with a strong flame. This fat stone was no doubt due to the lard used as a lubricant, which later became encrusted with phosphatic deposits.

#### Spontaneous Disruption of Vesical Calculi.

C. Adrian (*Strassburger Med. Zeitung*, No. 6, 1911): The following case may be regarded as presenting the typical picture of spontaneous fragmentation of vesical calculi. A careful history showed that there had never been any intra-vesical instrumentation. The patient, a male 67 years old, had had symptoms of vesical stone seven years previously having refused operation at that time. For the past two years there were marked pyuria and dysuria. Suprapubic cystotomy was done and 25 fragments and one large intact stone were removed. The total lithic weight was 105 gms. Five stones could be reconstructed out of the fragments. Three of the calculi were broken in 2 pieces, one in 5 pieces, and one in 6 pieces. Besides this a number of small stones were found. The stones were split in an axial and radial direction, and the fragments fitted into one another perfectly, so that the author is of the opinion that the fracture was of recent occurrence.

The stones consisted of uric acid salts with traces of inorganic material.

Englisch in looking over the literature of the last 300 years found 102 cases reported. The condition is chiefly seen in old people and most of the stones were of the uric acid variety. There are two theories as to the causation of this phenomenon, the chemical and the mechanical. According to the chemical theory the fracture is due to irregular chemical construction of the stone, or to chemical changes in the urine (decomposition of urea, gas formation, etc.), producing changes in the interior of the stones. The mechanical causes may be external trauma, marked contraction of the bladder walls, or the knocking together of numerous calculi. The author thinks that both factors played a rôle in his case.

## SOCIETY PROCEEDINGS

### ASSOCIATION FRANCAISE de CHIRURGIE

XXIV CONGRESS, HELD IN PARIS, OCT. 2-7, 1911.

**ABORTIVE TREATMENT OF GONORRHEA WITH ARGYROL.** *Janet* reports a series of six successful cases in which a cure was effected within four days, the discharge having appeared no longer than 12 hours before treatment was instituted. Two treatments are given daily, the urethra being first washed with a 5 per cent. solution of argyrol and then injected with a stronger solution (from 5 to 20 per cent).

**DIAGNOSIS AND TREATMENT OF CHRONIC POSTERIOR URETHRITIS.** *Luys* points out the futility of attempting to diagnose lesions of the posterior urethra without the use of the urethroscope, and recommends topical applications, amongst which galvano-cautery is one of the most useful.

**PAPILLOMATOSIS OF THE PENILE URETHRA.** With the urethroscope *Payenneville* found an interesting condition of diffuse papillomatosis of the anterior urethra in a patient who had chronic urethritis. After a period of six weeks, during which the actual cautery and caustic silver nitrate were employed, almost all of the vegetations had disappeared and the discharge too had practically abated.

**POLYPOID URETHRITIS.** A generalized polypoid condition of the anterior urethra is believed by *Le Fur* to be the cause of a rebellious urethritis in some cases, and may be overlooked unless endoscopy be employed. After destruction with cautery, it is advisable to terminate the treatment with dilatation as a prophylactic against stricture.

**PRIMARY EPITHELIOMA OF THE URETHRA.** According to *Michon*, the urethra of the glans penis is but rarely the seat of primary epithelioma. He reports one case in which there was no recurrence one year after amputation of the penis and extirpation of the inguinal nodes.

In discussing the case *Pousson* expresses himself as being opposed to castration in cases of cancer of the penis. Although recurrences are always to be feared in this condition, a surprising case of complete cure is encountered now and then. As an example, the author cites a case of a young man who has now been free from return of the tumor for four years, although a local recurrence had been treated by cauterization shortly after amputation had been done.

**VARICOSITIES OF THE URETHRA.** Two cases of varicosities in the region of the external urethral meatus and not extending beyond the glans are described by *Lebreton*, who says that sufficiently marked symptoms may accompany this condition to warrant energetic treat-

ment. His patients presented increased frequency of micturition, pain at the end of the penis and certain neurasthenic signs. On opening the lips of the meatus, the bluish varices were strikingly prominent. Several seances, in which an electrolytic current of 5 mm. ampères was applied to the venules, sufficed to bring about the disappearance of both the functional and the neurasthenic symptoms.

**DOUBLE URETHRA INFECTED WITH GONORRHEA.** *Jeanbrau and Jourdan* have encountered a remarkable anomaly in the shape of an accessory urethral passage 6 cm. long, with a distal opening at the coronal furrow and with a proximal orifice at the peno-scrotal angle. The canal was extirpated, the wound healing by first intention. Histological examination of the excised tissue revealed a veritable miniature urethra with stratified cylindrical epithelium and a corpus spongiosum. In such cases where gonorrhea is a complication, the only reliable procedure is total extirpation.

**PARA-UMBILICAL ABSCESS OF URINARY ORIGIN.** *Escat* reports two cases of stricture of the urethra with retention, infection and periprostatis, complicated with the formation of an abscess under the umbilicus in the upper part of the space of Retzius. In one instance the process originated in the periprostatic and perivesical region, the exudate surrounded the neck of the bladder, perforated the pre-vesical fascia above, thence gravitating so as to form the semilunar type (Heurtaux) of abscess with its convexity pointing down. The classical purulent exudate in the space of Retzius is convex upward.

The author's second case presented an abscess which appeared to be located in the right rectus muscle. In reality it lay in the posterior sheath of that muscle, the infection having traveled upward along the umbilical artery.

From these observations it is clear that the following types of phlegmon on the space of Retzius may occur; the superior median type (described by Heurtaux) which is convex downward; the hypogastric variety with its convexity up; and the lateral abscess. A cure was effected in the two cases by incision of the abscess and internal urethrotomy.

**PYONEPHROSIS DUE TO THE TYPHOID BACILLI.** *Boecke* recounts the interesting history of a young girl 16 years of age, who some 10 years previously had had typhoid fever, and who at the time of the nephrectomy for pyonephrosis still harbored living typhoid bacilli in the kidney and urinary bladder.

**SUBCAPSULAR HYDRONEPHROSIS,** with concomitant true hydronephrosis, is the theme of a report by *Camelot*, who performed transperitoneal nephrectomy on a woman of 37 years of age. Cystoscopic examination showed that the right ureter was obliterated and histo-



logical study demonstrated that the wall of the sac containing the extravasated fluid was devoid of epithelium.

ICTERUS ATTENDING MOVABLE KIDNEY forms the subject of a study by *Legueu* and *Papin*, who base their conclusions on a consideration of two cases. In one case there was marked jaundice, pain radiating into the shoulder and a large infra-hepatic mass that was regarded as the inflamed gall-bladder. At the operation it became evident that the tumor was a hydronephrotic kidney compressing the biliary passages. The second case had a floating kidney, with increased frequency of micturition, a subicteric discoloration of the conjunctivae without any physical signs referable to the liver. In collecting 53 cases of movable kidney with icterus, the authors found that an error in diagnosis had been made in 39 patients, all of whom had been operated upon for cholelithiasis.

In 14 cases with cholelithiasis icterus was usually absent, the diagnosis of movable kidney was made, and, later on, the gall-stones were discovered. The authors believe that when the renal symptoms predominate it is expedient to perform nephropexy first and to do a laparotomy if the hepatic symptoms are most striking. In all probability, the jaundice is due to the distortion of the bile ducts by the hepatico-renal ligament.

CALCULUS ANURIA forms the topic of the remarks of *Noguès*, who relates the history of a case in which a lumbar renal fistula had persisted after nephrotomy for right-sided pyonephrosis. A month after the operation the left ureter was catheterized because of the presence of symptoms, and the renal function found inadequate. Soon after a calculus was spontaneously expelled from the left ureter. After the lapse of two years, during which the fistula remained open, exitus followed the sudden onset of anuria. *Noguès* feels justified in drawing the following conclusions:

1. Blockage of the urinary flow is not the only cause of anuria; an inhibitory reflex may be responsible in a good many cases.
2. There must also be a form of anuria dependent on disintegration of the kidneys, due to prolonged suppuration.
3. The accumulation of urea in the blood is not the cause of the arrest of renal secretion since the patient under consideration presented a normal percentage of urea.

THE RENAL FUNCTION IN LITHIASIS has the following characteristics, according to *Pasteau*. Although a calculus kidney functions less actively than the normal organ, its capacity is usually adequate unless either advanced aseptic retention or septic retention become complications. Since the function depends essentially on the condition of the parenchyma, it may occur that a small calculus associated with diffuse tissue changes is attended with a much greater

reduction in renal capacity than is a large stone that has left the kidney substance more or less intact. In the presence of unilateral lithiasis with calculus nephritis the other kidney may also show evidences of renal inflammation.

EXPULSION OF URETERAL CALCULI may be effected by leaving the ureteral catheter *in situ* for 24-48 hours. *Le Für* utilizes this procedure also to overcome the retention and to cause an enlargement of the ureter. During this period it is well to wash the renal pelvis with instillations or lavages of mild antiseptic solution.

RESULTS OF NEPHRECTOMY FOR CARCINOMA are relatively good in the hands of *Rafn*, who reports 20 per cent. cured. The conditions favoring a definite cure are short duration of the symptoms and limited extent of the lesion. However, it is not an uncommon experience to encounter surprises relative to the significance of the size of the tumor. Thus the author describes a case in which death occurred after nephrectomy for a very small tumor. Nevertheless, the intima of the renal vein was already involved by tumor masses. In another case of small renal tumor, thoracic metastases occurred six months after removal of the kidney.

NEPHRECTOMY WITH LATERAL APPROACH is recommended by *Chevassu*, who has adopted the following procedure especially for renal tuberculosis. The incision begins in the axillary line over the tenth rib, and descends obliquely downward and forward so as to end a finger's breadth in front of the antero-superior iliac spine. The fibres of the external oblique muscle are bluntly separated, the two deeper muscles being cut through. The transversalis is carefully divided so as to avoid opening the peritoneum. By means of blunt separation of the tissues the kidney is approached and the capsule opened far posteriorly. With the peritoneum well retracted it is possible to bring to view the anterior surface of the kidney and also the pedicle. The organ can be liberated, delivered with a minimal amount of traction and easily removed. A drainage hole is made in the lumbar parietes at a point low down and far from the wound. This incision offers the advantage of a good exposure, of facilitating the ligation of the pedicle, expediting the removal of the organ without exposing it to tearing and mutilation, and of affording an excellent method of drainage.

SUTURE OF INCISED RENAL PELVIS AND URETER is useless in most cases, according to *Marion*. For, besides exposing the suture material to incrustations with urinary salts, stricture of the ureter may result if this channel be not previously enlarged and dilated. Judging from his own statistics (15 cases of pyelotomy, 13 of ureterotomy), the cases that were not sutured healed just as well as

those sutured. However, in certain cases, such as in copious bleeding of the edges of a pyelotomy wound, it is well to resort to careful suture. But when dealing with the ureter, it is well to remember that we should sew only if the channel be dilated and the execution of the stitch be easy.

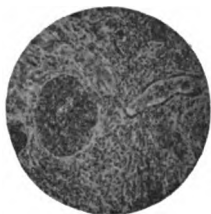
LAVAGE OF THE RENAL PELVIS is regarded by *Desnos* as giving excellent results. After draining the pelvis with the ureteral catheter, the irrigation is begun and finally a quantity somewhat less than the pelvic content is injected and retained. If the capacity be within 100 gm., the treatment is indicated and may do good. Particularly striking results were obtained in the infected cases of *tubercles* and in 3 patients the local symptoms were made to disappear completely.

### GENITO-URINARY SECTION OF THE NEW YORK ACADEMY OF MEDICINE

Stated Meeting of the Genito-Urinary Section, Held at the New York  
Academy of Medicine, January 17th, 1912

#### COLLAGOL IN THE RENAL PARENCHYMA

*Dr. Buerger* presented a case in which collargol was found in the renal parenchyma.



To the left a glomerulus with collargol; on the right a cast with fine granules lying in a dilated tubule.

He showed the gross and microscopic specimens of a kidney which clearly demonstrated that collargol, when injected for the purposes of uretero- and pylo-radiography, may penetrate deeply into the renal parenchyma.

He had had occasion to distend the ureter and pelvis with collargol in the case of a young woman upon whom ureterotomy had been performed by a colleague some 6 weeks previously for ureteral stone. The patient had sought readmission to the hospital for the relief of almost constant lumbar pain following the operation. Ureteral catheterization showed the presence of an impassible obstruction 9 cm. above the bladder; and it was with a view of determining the nature of the stricture and the size of the ureter and pelvis that the collargol injection was done. The radiograms demonstrated clearly that there was a stricture of the ureter, at the point previously found, and that the ureter was dilated above.

Fifteen days later a plastic operation on the ureter was attempted by *Dr. Lilienthal*, who decided that reconstruction of the

ureter was not feasible, owing to the large amount of scar tissue present. Accordingly, nephrectomy was done, and when the specimen was examined by Dr. Buerger, there were macroscopic evidences in the renal parenchyma of the presence of collargol. For, in several places, triangular brownish streaks with black centers could be distinguished in one of the papillae and in several areas of the cortex.

The pelvis, calices and ureter were completely free from collargol.

Microscopic examinations revealed collargol, not only in the collecting tubules, but the glomeruli (see figure), near the periphery of the organ, as well as many places in the interstitial connective tissue, were studded with the medication.

Chemical reactions made by Dr. Rosenbloom clearly proved the black and brown pigmented areas to contain silver.

Dr. Buerger thought it might be instructive to record this finding of collargol in the kidney substance more than two weeks after the pyeloradiography, all the more so since no undue force was used in injecting, and since no untoward symptoms referable to involvement of the kidney had followed the procedure.

Dr. Keyes asked whether the injection of collargol was sufficient to show the tips of the calices; in other words, whether there was any pressure in the kidney, whether the patient had any renal colic, and whether there was much evidence of parenchymatous infection of the kidney before the injection.

Dr. Furniss thought the matter was explained by a previous lesion. In only one case had he taken out the kidney after collargol had been used, and then there was no evidence of any trouble. He asked whether there was any temperature that might have arisen from the little points of infection that showed in the kidney.

Dr. Buerger replied that there was no evidence of renal colic, no rise of temperature and absolutely nothing to indicate trouble from over-distension of the pelvis. It was his habit to allow the catheter to remain *in situ* five or ten minutes to drain off the collargol. However, he did not know how much of the 12 c.c. injected may have returned through the catheter. Of course, the stricture had a great deal to do with probable retention. The radiogram did not show the tips of the calices clearly, but the ureteral dilatation was very apparent. There was but a trace of albumin in the urine. The microscopic examination showed diffuse parenchymatous nephritis, and also foci of interstitial nephritis of the lymphocytic variety. It is true that the inflammatory process was in general most marked in the neighborhood of the collargol deposits. In view of the pre-existing hydronephrosis and the fact that the ureteral function was poor (as shown by tests and catheterization), it is impossible to determine

whether the inflammatory changes had antedated the injection or not. *Dr. Buerger* thought that it would be exceedingly valuable to study all kidneys removed after pyelorradiography for the presence of silver, and to investigate whether argyrol, as well as collargol, can travel deeply into the kidney substance, where it might be retained and do harm.

#### A CASE OF NEPHRECTOMY

*Dr. Chetwood* presented a case of nephrectomy with an obscure history, which had been variously attributed to a paranephritic process, a cavernous tuberculous condition and a chronic pyelonephritis caused by calcification, but which the pathological laboratory, although still unable to give a final report, declared to be a neoplasm, either an epithelioma or a sarcoma.

*Dr. Page* presented for the second time a patient whom he had shown at the last meeting with a chancre on the lower lip simulating epithelioma and raising the question whether there was a syphilitic infection grafted on epithelioma. Salvarsan had been administered in the meantime, with the result that the ulcer was now healed.

*Dr. Young* exhibited a proctoscope with the light at the proximal end, thus overcoming the difficulty which used to arise from the use of small lamps at the distal end.

*Dr. Hayden* exhibited a set of operating instruments, including two or three knives, an applicator and a syringe for injecting the periurethral follicles and ducts, which were not ready when he exhibited his endoscope at the last meeting.

#### THE ULTRA-VIOLET RAY IN GENITO-URINARY DISEASES

*Dr. Hayden* read a paper entitled, "The Ultra-violet Ray in Genito-urinary Diseases." This paper appears in full on p. 125 of this issue.

In discussing *Dr. Hayden's* paper, *Dr. Titus* took exception to the term ultra-violet ray. The ultra-violet ray, he said, will not pass through ordinary glass, but only through a quartz lens or crystal; and the ultra-violet rays must be produced by an open arc lamp or by a high potential oscillating between little balls. It is the X-ray fluorescence in the vacuum tubes and the actinic effect of the X-ray discharge that produces the effect described. The effect obtained is bactericidal, and contraction of the protoplasmic structure is produced, which induces circulatory drainage and relieves stasis. Three sorts of physical effects are obtainable by electricity, said *Dr. Titus*: the contraction induced by the rays in the vacuum tube, electrolytic effects produced by the galvanic current, and thermic effects pro-

duced by the D'Arsonval current. He had not seen any ill effects from the vacuum tubes.

*Dr. Chetwood* said that he had used the high frequency current from time to time, but had not obtained any beneficial results which might not be ascribed to the introduction of the instruments themselves or the projection of the heat produced by the current. Cases that seemed to be benefited were mostly of the neuralgic or neurasthenic type. The effect on the basic condition of hypertrophy of the prostate was absolutely nil. Some effect might be produced on congestion, but it was a question whether this was not due to the massage of the instruments.

*Dr. Squier* said he had obtained results with the high frequency current only in cases of children with enuresis, and he believed they might have got better anyway.

*Dr. Ware* also had a poor opinion of electro-therapy in genito-urinary diseases, but *Dr. McCarthy* said that he had obtained marked benefit with high frequency currents as far as dysuria was concerned, and he believed it was a large field which was too much neglected.

*Dr. Hyman* reported that of six cases in which he and *Dr. Beer* had used the high frequency current with the same copper electrode used for fulgurating tumors of the bladder, one case showed no improvement at all, one case was cured, and the other cases have not shown any lasting improvement. While under the treatment they showed improvement in the subjective symptoms, as soon as the treatment was stopped the same symptoms returned. They had used the glass vacuum electrode in a few cases of prostatitis complicated with epididymitis that could not be massaged and obtained marked alleviation. Impotence had been cured by five or six applications of the high frequency current, but he thought the effect was entirely psychical.

On the other hand, *Dr. Stern of Hartford* said that, knowing the effect of the X-ray in producing impotence, he had tried the high frequency current five to ten minutes once or twice a week on a man separated from his wife who wished to reduce the intensity of his sexual desires and that it seemed to have the desired effect.

In closing, *Dr. Hayden* said that he did not wish to be understood as having said that the high frequency or any of the currents have any effect on prostatic hypertrophy itself; his only claim was that it reduced the inflammatory exudate and the swelling. Nor did he claim that it had any effect on true stricture of the urethra. He only contended that electricity was not employed sufficiently or in an intelligent way for those results which it was capable of producing.

## THE COMPLEMENT DEVIATION TEST IN THE DIAGNOSIS OF GONORRHEA

*Dr. Keyes* read a paper entitled, "The Complement Deviation Test in the Diagnosis of Gonorrhea."

He said that the establishment of the diagnosis of a cure in gonorrhea is one of the most difficult problems in urology. The Gram stain is inadequate for various reasons, chief among which is that there are numerous gram negative intra-cellular cocci which can only be differentiated from gonococci by culture. Cultures may also prove unsatisfactory, for the various degeneration types of Gram negative and positive cocci may so overgrow the cultures as to render the diagnosis doubtful, unless repeated examinations are made.

To overcome these errors complement deviation tests have been proposed; these were generally unsuccessful until the method of *Dr. Schwartz* of Cornell appeared, in which numerous strains of gonococci were used, thus giving an antigen that apparently responded to all requirements. The author has found the test to be very accurate, although its limitations must be kept in mind. Generally speaking, the reaction does not appear until the posterior urethra has become invaded, consequently it has no value in the first two or three weeks of gonorrhea or in determining the cure of aborted mild cases. The average persistence of the reaction after a cure is usually less than six weeks.

Several of the members, discussing *Dr. Keyes'* paper, expressed doubts about the possibility of attaining accuracy in the complement fixation test for gonorrhea, on account of the complexity of the technique. *Dr. Kaliski*, who has worked with *Dr. Noguchi* along similar lines, pointed out that tests should be made with other organisms which inhabit the urethra, besides the gonococcus. The work of the Japanese and the Germans on this question, he said, was prior to that of *Dr. Schwartz* and *Dr. McNeil*.

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## EXPERIMENTAL STUDY OF THE EFFECTS OF URETERAL OBSTRUCTION ON KIDNEY FUNCTION AND STRUCTURE

BY EDWIN BEER, M. D., NEW YORK CITY

THE following work was begun over four years ago to determine, if possible, how long a ureter might be tied off, before making a uretero-vesical anastomosis, without sacrificing the involved kidney's functional integrity. In the course of difficult pelvic dissections it is well known that the ureters are occasionally injured and at times the attempt to repair the damage protracts the original operation to a dangerous degree. To avoid this prolongation, numerous operators have resorted to direct ligation of the involved ureter<sup>1</sup> above the point of injury relying upon the natural process of atrophy to take care of the thus excluded kidney. If an operator is thus forced to exclude the kidney of one side, either actuated by such doubts as are engendered by undue prolongation of the operation or by reason of the fact that the operative technique appears to be too difficult, the possibility of a later operation anastomosing the excluded side with the bladder has been completely ignored, as far as I have been able to discover in a study of the literature. To determine how long such a kidney could wait without losing its functional adequacy, was the original impulse for this study, in the course of which many other interesting points developed. In this paper I expect, therefore, as briefly as possible to bring all these facts together without extensive narration of numerous experimental details involved.

<sup>1</sup> L. Landau: "Deutsche med. Wochensch.," 1900.

Wassiljew: "Deutsche Zeitschrift f. Chirurgie," 1907, Vol. 89.

A. V. Rosthorn: J. A. M. A., p. 1881, 1906.



All the work was done on some 60 dogs in the Surgical Research Laboratory of Columbia University. To the gentlemen in charge of this Laboratory, as well as the students who assisted me, I owe a debt of gratitude which I gladly take this opportunity to express.

I. *Hydronephrosis may result from infection of the uretero-pelvic tract without stenosis.*

A series of experiments was made with the object of determining the effect of direct injection of cultures into the ureter after extraperitoneal exposure of same without in any way injuring its lumen by artificial stenosis. Colon bacilli were injected through a very fine needle. The involved kidney and ureter were removed at varying times and regularly showed well marked hydronephrosis and hydroureter. In the earliest case the kidney was examined nine days after the injection and the organ was enlarged and the pelvis moderately dilated. In another case after fourteen days the kidney was removed and it was practically normal, except for well marked hydronephrosis. In another case after twenty-one days a good sized hydronephrotic sac was present.

In none of the cases were abscesses produced in the kidney parenchyma.

II. *Hydroureter and hydronephrosis of an extreme degree, in time leading to complete parenchymatous atrophy, follow injection of infectious organisms above a stenosis.*

If the same technique is followed as under I, plus complete or incomplete ligation of the ureter whether with *catgut* or with *silk*, an extreme degree of distention of the pelvis and ureter follow, unless the injected bacteria are too virulent, when pyonephrosis or pyelonephritis and early death follow. The early pictures are very much as under I. Thus already in five days a moderate hydronephrosis has developed. In another case in eleven days there was a marked dilatation with some perinephritis. In another in twelve days, the same picture. In cases lasting thirty-five days a very large hydronephrotic sac developed despite the use of a *catgut* ligature in producing the stenosis. In still another case after fifty-six days nothing but a large sac was left representing the destroyed organ.

III. *After developing a primary hydroureter and hydronephrosis of a mild degree, the kidney undergoes atrophy if the ureter is tied and no infection is superadded.*

If the same technique is used as under II, and no organisms are introduced into the ureter there is a primary dilatation above the stenosis, which gradually recedes after the first two or three weeks, and then the pelvis becomes folded on itself and the kidney parenchyma gradually atrophies. This atrophy becomes so complete that at the end of five months (case 9) the excluded kidney is nothing more than a firm fibrous mass measuring from pole to pole one inch and from sinus to convexity one-half inch, with folded enlarged pelvis and ureter. These phenomena are of importance in connection with the problem which led to this series of experiments, as they bear upon the essential question that is involved, i.e. the functional adequacy of an excluded kidney.

From this series of cases it seemed likely that the excluded organ was able to secrete up to about the third week as evidenced by the dilatation and distention of pelvis and ureter up to this date. It also appeared that after these three weeks the function was materially impaired as the distention, probably an evidence of secretory activity, disappeared. Chemical examination of the fluid in the distended ureter showed varying amounts of urea which seemed corroborative of this view point. Fluid removed three weeks after ligation showed no urea in one case; in another twenty-four days after ligation only .005 grams per cubic centimeter, whereas fourteen days after exclusion in another case, urea as high as 5%.

IV. *If a kidney is excluded up to 3-4 weeks and then its ureter is reimplanted in the bladder, the kidney seems capable of carrying on all the excretory work of both organs.*

To adequately test the functional capacity of the reimplanted kidney, it was necessary to remove the other kidney. Cystoscopic examinations with indigo carmine, though repeatedly made, I did not accept as conclusive evidence of renal adequacy or inadequacy. Consequently the most exacting test was resorted to and nephrectomy of the second organ performed. In human surgery we will not be called upon to perform any such test, nor is such a degree of adequacy required. If one can reimplant an excluded kidney that has only 50% of the total renal capacity, it is that much gain as all cases coming into this category must have a second adequate organ.

To demonstrate the evidence upon which the conclusions just mentioned are based, I shall report several experiments in detail.

Experiment: (215) Male dog. March 24th, 1909.

March 24th, 1909: First operation: Through low laparotomy the right ureter was exposed at insertion into bladder. Silk ligature tied at this point.

March 31st, 1909: A low left sided Kammerer incision. Bladder drawn into wound, after separating omental adhesions. The ureter was found dilated moderately with clear amber colored fluid. An anastomosis of ureter and bladder was made, side to side, by means of a heavy silk ligature (McGraw technique), reinforced with Lembert sutures.

April 24th, 1909: Dog in fine condition.

May 29th, 1909: Left lumbar nephrectomy.

September 1st, 1909: Dog died.

Autopsy: Bladder contains amber colored fluid; specific gravity 1024; urea .2% ; alkaline; microscopically, many pus cells and inorganic salts. The kidney pelvis and ureter contain muco-pus full of gravel. The parenchyma shows numerous abscesses. The pelvis is dilated. The new opening in the bladder is surrounded by edematous tissue which has stenosed it, preventing ready emptying of distended ureter into bladder.

Remarks: In this dog the right kidney was excluded for one week and then the corresponding ureter was implanted in the bladder. After the dog had thoroughly recovered from these operations the adequacy of this kidney was tested by removing the left kidney. The dog continued to live for over three months, showing no signs of renal insufficiency. Had no infection supervened death might not have resulted when it did. In brief, this dog's right kidney, though it had been excluded from work for seven days, was capable of carrying on all the renal excretory work of the organism.

Experiment: (226) Male dog. April 3rd, 1909.

April 3rd, 1909: First operation: Right ureter exposed close to bladder by transperitoneal route, and ligated.

April 17th, 1909: In excellent condition.

April 24th, 1909: Three weeks after ligation of ureter, the anastomosis between the dilated ureter and bladder was made by double row of sutures. Cultures from dilated ureter which contained bloody turbid fluid showed staphylococcus albus.<sup>2</sup>

<sup>2</sup> I take this opportunity to thank Dr. H. Celler for the bacteriological examinations which he very kindly made for me.

May 8th, 1909: Doing well.

May 22nd, 1909: Nephrectomy (left kidney).

June, 1909: Dog did very well.

July 11th, 1909: Sudden development of anuria followed by death.

Autopsy: Calculus found plugging the ureter. Kidney shows dilated pelvis full of white calculi, one of which had wandered into and blocked the ureter producing the fatal anuria.

Remarks: In this dog, the kidney had been excluded three weeks before it was allowed to resume its work and after this period it was still capable of doing the necessary excretory work. No signs of renal insufficiency developed until the accidental blocking of the ureter by a calculus took place.

Experiment: (38) Fox terrier. August 16th, 1909.

August 16th, 1909: First operation: Ligation of right ureter close to bladder.

September 15th, 1909: Anastomosis of ureter and bladder, thirty days after the first operation. Cultures showed staphylococcus albus.

December 18th, 1909: In good condition.

February 19th, 1910: Nephrectomy (left kidney).

February 20th, 1910: Doing well.

Urinalysis: Specific gravity 1030; alkaline reaction; faint trace albumin; 2% urea; phosphates and pus cells.

February 21st, 1910: Total urine gathered 345 c.c. Specific gravity 1020; alkaline; 1.5% urea.

February 22nd, 1910: Total urine gathered 480 c.c.

February 23rd, 1910: Total urine gathered 750 c.c.

February 27th, 1910: Total urine gathered 720 c.c.

March 5th, 1910: Dog in excellent shape. Continues to take food well; no vomiting; active and getting fat.

March 19th, 1910: In excellent condition.

April 8th, 1910: Killed. Autopsy showed a large stone in bladder, three-quarters of an inch in diameter. New ostium patent. Right ureter somewhat dilated. Right kidney is approximately one-third the size of the previously excised left kidney which had been removed February 19th, 1910. It measures one inch in the vertical and one-half inch in transverse diameter.

Remarks: This dog lived very satisfactorily on the right kidney which did all the necessary excretory work even though it had been excluded for thirty days. In still another case (40) I excluded a kidney for thirty-seven days, and when it was tested by the same physiological test, i.e. forced by nephrectomy of the second organ to do all the work it excreted four days after the

nephrectomy 650 c.c. of urine, which on testing was alkaline in reaction, contained a faint trace of albumin, urea 1.6% (10.4 grams). Subsequently this animal developed signs of insufficiency and vomiting set in followed by anuria and death.

Resumé: From such experimental data it is evident that even after three or four weeks exclusion of a kidney, sufficient parenchyma is preserved to carry on the excretory work of the organism. Whether these results in dogs can be transferred to humans, experience alone can tell us. The knowledge gained from these data are very suggestive and in future if an operator resorts to ligation of a ureter, he must bear in mind the fact that the excluded kidney may be made a useful organ if an anastomosis is made within three to four weeks of the original exclusion.

From the work done in connection with this subject, the following conclusions seem justified:

1. Infection of a non-stenosed ureter may lead to a hydronephrosis. Perhaps this explains some of these cases of hydronephrosis in which no mechanical cause is found.

2. Infection of the ureter rarely leads to abscess formation, to multiple abscesses of kidney, unless the ureter is stenosed and then only when the injected organisms are virulent.

3. Aseptic ligation of ureter leads regularly to a primary hydroureter and at about three weeks atrophy and shrinkage of hydronephrotic sac begins.

4. The idea that the use of catgut ligature material in pelvic work will not cause a permanent ureteral stenosis, if this organ is tied off, is erroneous.

5. Three to four months after ligation of the ureter the kidney is represented by a small fibrous mass, provided infection is not present. If infection is introduced a huge hydronephrotic sac without vestige of parenchyma results.

6. In face of infection stones readily form both in pelvis and bladder.

8. After three weeks exclusion sufficient parenchyma persists to warrant an attempt at secondary implantation of the ureter into the bladder.

## URINARY LITHIASIS—ETIOLOGY AND CHEMISTRY<sup>1</sup>

By FREDERICK E. SONDERN, M.D., New York.

**T**HE cause of the formation of calculi in the urinary tract has been a subject of controversy for centuries, and, while accurate analysis of the concretions was the first true step in the solution of this problem, there are still many polemic points seeking satisfactory explanation. Mere precipitation and agglutination as the cause of lithiasis has long been justly discarded, for were this all that is necessary for the formation of a calculus, few persons would escape the "cut for stone" of the older authors. About 40 years ago, Rainey described the process of "molecular coalescence," claiming that when two saline solutions which are calculated to produce an insoluble salt by decomposition are allowed to mix gradually through the intervention of a colloid medium such as albumin, a small, firm body is developed, instead of crystalline matter, by the union of nascent salt with colloid. These bodies, he claimed, have the tendency to meet and blend together, forming a laminar series. Crystals found in calculi, being deposited in the presence of a colloid medium, differ very much from the crystals of the same substance found in urine sediment. The presence of this colloid medium was explained by any, possibly temporary, renal disorder. This view was elaborated by H. Vandyke Carter in a booklet on the subject of urinary calculi, published in London in 1873, in which he repeats the belief that this colloid material is essential to the formation of calculi, and that it is of inflammatory origin. Later investigators invariably demonstrated the presence of this organic framework, even in the smallest concretions and infarcts. Ebstein published an elaborate monograph 20 years ago concerning the origin of this colloid and its influence in the formation of calculi.

Is the colloid or organic framework essential to the formation of the stone, or is it simply a secondary admixture? If it is essential to the stone formation, is the colloid material the result of an inflammation as the older authors claimed, or are the views of Ebstein to be accepted, that the organic framework is the result of epithelial disintegration produced by irritation or poisoning by the crystalline material? Aschoff claims to have dem-

<sup>1</sup>Read before the Clinical Society of the New York Post-Graduate Medical School and Hospital, Nov. 17, 1911.

onstrated that uric acid can be deposited in the kidney in granular instead of crystalline form without injury to the epithelium, and could find no basis for Ebstein's statement that this epithelium was injured. Kleinschmidt in his book on the subject published in Berlin a few weeks ago, corroborates Aschoff and states that the experimental saturation of the blood with uric acid in animal causes infarcts in the kidney without injury to the epithelium or the formation of any colloid substance whatever.

While these questions are still matters of controversy, it has certainly been demonstrated experimentally and clinically that an excess of the stone forming material must be present in order that the primary stone or nucleus may form. Either there is an excessive excretion of this material or the chemical composition of the urine has been altered so that the normal amount, or even a diminished amount, of crystalline or amorphous matter is precipitated, instead of remaining in solution. These faults in the composition of the renal excretion are usually ascribed to disturbances of metabolism. Faulty body chemistry is chiefly found in the gastrointestinal tract. While suboxidation of nitrogen with excessive uric acid excretion is usually referred to faulty hepatic function; gastric hyperacidity, with carbohydrate fermentation in the intestine, is looked upon as a cause for abnormal changes in phosphate salts causing precipitation, and gastric hypo-acidity, with albumin putrefaction in the intestine, is generally associated with oxaluria, these rules are by no means constant. Richter, in a paper on phosphaturia, recently read before the International Association of Urology in London, while speaking of faulty metabolism as the etiological factor, stated that he has reason to believe that there is a disturbance of internal secretion. While the seat of this fault has not been found, he believes it to be in the so-called acceleratory glands. The fact that the faults of metabolism are exhibited by many persons over long periods and are often associated with constant pronounced crystalline and amorphous deposits in the urine without stone formation, and the fact that repeated examinations have failed to reveal evidences of faulty metabolism in patients having calculi (excepting in cystinuria), prompts the belief that an additional factor is necessary. Whether this factor is the colloid material of Carter or Ebstein, or something not yet described, remains to be seen.

No foundation has been discovered for the old view that a

damp climate predisposes to lithiasis. Excess of lime in drinking water was often quoted as a cause and used to explain the frequency of calculi in England and China. Fenwick, I believe, stated that the largest number of cases happened to be noted in the city having the softest drinking water in England, and Cochran of Hwai Yuen, China, in a personal communication, stated that a larger number of cases occurred in his district than in other sections of the country in which the drinking water contains larger amounts of lime.

It is true that uric acid and urate salts form the nucleus of by far the larger number of calculi, and Kleinschmidt voices the opinion that these probably date from uric acid infarcts in the newborn. He adds that temporary conditions leading to an excessive excretion of uric acid, such as pneumonia, pregnancy, scarlet fever, etc., also predispose to the rapid formation of these primary calculi. An interesting experiment is noteworthy, namely, a smooth stone will increase in size if placed in normal urine without precipitate, which is renewed daily, evidently drawing crystals from the clear urine. This would justify the belief that the abnormal condition during which the nucleus is found may be temporary, and that the stone can continue to grow in size, even if normal urine is excreted. Primary calculi originating during a period of faulty metabolism which may be temporary, and secondary calculi, or the outer layers covering the primary, may be derived from normal urine, as shown above. Secondary calculi which develop during inflammatory lesions of the urinary tract are usually referable to changes in the urine due to bacterial activity, which produces at least a change in reaction, and also alters the chemical composition with resulting less soluble salts.

Analysis of the nucleus or primary calculus in non-inflammatory cases shows uric acid or urate salts in the larger majority of instances, as previously stated. Quantitative analyses made by Kleinschmidt show that while they are rarely pure uric acid stones, the uric acid averages 96 to 98% in 6 calculi analyzed. Oxalate of lime, xanthin, cystin and calcium phosphate form primary calculi exceptionally. Primary calculi in inflammatory cases usually consist of a mixture of phosphate salts, but careful quantitative analysis shows the average presence of about 18% of uric acid, which is usually overlooked in the average qualitative analysis.



Secondary calculi in noninflammatory cases, or the shell covering nucleus, may show the same material contained in the primary stone; there may be a totally different material, or the structure may be complex. Pure stones of any material are decidedly exceptional. The most common secondary calculi consist of uric acid and urates on a nucleus of the same materials present in different proportions. Uric acid and urate secondary calculi are sometimes found on oxalate of lime, or calcium phosphate nuclei. Secondary oxalate of lime, or calcium phosphate calculi, occur on uric acid and urate nuclei. Finally, calcium phosphate stones are found on oxalate of lime nuclei. Secondary calculi in inflammatory cases usually show mixed phosphate salts, calcium carbonate and ammonium urate. These calculi may have a foreign body as nucleus or a primary and even a secondary noninflammatory stone underneath. Mixed stones often show a very complex structure, as noted in the quantitative analyses published by Kleinschmidt, of which one example is as follows:

Calcium oxalate . . . . .	70%
Organic matter . . . . .	21%
Calcium carbonate . . . . .	2%
Calcium phosphate . . . . .	2%
Ammonia . . . . .	3%

Concerning the relative frequency of occurrence of the different varieties of stone, the following table of Kleinschmidt may be interesting:

Of 54 stones examined, there were 9 primary noninflammatory ones; 4 of uric acid, 2 each of oxalate of lime and calcium phosphate and 1 of cystin. There were 19 primary inflammatory ones, all consisting of mixed phosphate salts. Of 18 secondary calculi noninflammatory, 12 consisted of uric acid, 5 of oxalate of lime and 1 of calcium phosphate. The 8 secondary calculi in inflammatory cases all consisted of mixed phosphate salts.

## DIAGNOSIS OF URINARY LITHIASIS<sup>1</sup>

By HENRY G. BUGBEE, M.D.

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**T**HAT the proper treatment may be instituted for the relief of urinary lithiasis, it must be possible to ascertain not only the presence of a calculus, but the number and location. Often we are able to determine the size, shape and composition of a calculus, which information is of importance. Probably in no other branch of surgery have such rapid strides been made during the past few years as in that of the genito-urinary tract. This progress is largely due to the means which we now possess of localizing lesions, recognizing the character of them and in applying specific treatment at a stage of the disease when it will be most effectual.

The new diagnostic agents are mechanical, their manipulation relatively intricate, and for their use a special training is necessary.

As a preliminary to the conducting of any special diagnostic procedure, one should obtain a well rounded picture of the case from the patient's personal history, a careful, complete, physical examination and an analysis of a 24-hour specimen of the urine. Formerly, a diagnosis of urinary calculus had to be made from information gathered in this way. Some were discovered, and many were overlooked. Information gained by these means may be definite or misleading. The urinary tract for nearly its entire extent is placed deeply beneath the surface of the body. It is surrounded by important structures, is highly vascular, well supplied by nerves, and is functioning continuously. Thus it is difficult to palpate the organs; there is a liability to infection, hematogenous, or by extension from surrounding organs, and the close connection with the nervous system gives us a symptom complex. The urine analyzed in bulk represents a mixture of the excretion of both kidneys, a washing of the ureters, bladder and urethra, and does not give a very definite clue to the localized pathological lesion.

The blind situation can now be clarified by a specific examination of the different areas of the urinary tract. This spe-

<sup>1</sup> Read before the Clinical Society of the New York Post-Graduate Medical School and Hospital, November 17, 1911.

cific examination consists in the employment of the X-rays, by which means a shadow of practically every urinary calculus is cast, a visual inspection of the interior of the bladder, and of the urethral orifices, and a search of the ureters with the ureteral catheter. A culmination of the examination consists in a collection of the urine from either kidney, tests for the functional capacity of each organ and a combination of the use of the cystoscope and the X-rays in outlining the bladder, ureters and kidney pelves, after distending the tract with an opaque silver salt.

Urinary calculi may be present in one or both kidneys, ureters, the bladder, prostate, or urethra. They may remain in the kidney, bladder or prostate for a long period of time and cause no symptoms. A calculus cannot remain in a channel such as a ureter or the urethra for any length of time without causing symptoms; in other words, so long as its presence does not interfere with the functional activity of any portion of the urinary tract, its existence may not be suspected. The slightest obstruction will often give rise to most violent attacks of renal colic. The only sign of a calculus may be the presence of a few blood and pus cells in the urine, or the urine may be loaded with pus and no local symptoms be present. A sharp hematuria may be the primary symptom, or the urine may be clear and the patient complain only of a dull lumbar pain. Any of these symptoms may be applied to any other pathological lesions of the kidney, and are easily associated with disease in other organs.

Illustrative of the presence of renal calculus where no symptoms are present, I may cite the two following cases:

Case I. Male, 21 years of age, general health excellent. No symptoms. An examination of the urine revealed the presence of albumin which could not be accounted for. Cystoscopy and ureteral catheterization showed a few blood cells in the urine from the right kidney. X-ray examination showed a smooth, oval, uric acid stone in a calyx of the right kidney.

Case II. Female, 62 years of age. Abdominal hysterectomy eight years ago. Since then has not been well. Abdominal distress not localized. Physical examination revealed an enlargement of the right kidney and the presence of pus in the urine. Cystoscopic examination showed pus in the urine from the right kidney—urine from the left kidney clear. X-ray showed a large calculus lodged in the pelvis of the right kidney. At the operation, the kidney was found nearly destroyed, and a large branching calculus filled the pelvis and calyces.

There is no definite history, there are no definite signs and symptoms referable to renal calculus. Renal colic, which is definite, is only present when the stone has started to travel from the kidney and has caused an obstruction to the outflow of urine.

A calculus, lodged in the kidney may give symptoms due to irritation and resultant inflammation. Such symptoms (dull lumbar pain, increased on exertion), can be confused with hematogenous renal infection, tumor or tuberculosis of the kidney, gall stones, tumors of the intestinal tract, or appendicitis.

A differential diagnosis is possible in the majority of cases from the history, physical examination, the use of the X-Rays, cystoscope, ureteral catheter and a radiograph of the tract distended with an opaque silver salt. The calculi lodged in the parenchyma of the kidney are usually small, and are the most difficult to diagnose. A calculus lodged in the parenchyma is beautifully shown by distending the pelvis of the kidney with a silver solution, a space intervening between the pelvic shadow and that of the calculus.

The calculus, the presence and position of which is most easily diagnosed, is that which causes obstruction in the upper urinary tract. Such a calculus may be lodged in a calyx or in the pelvis of the kidney or in the ureter. The symptoms vary as to whether the obstruction is partial or complete. If complete, the symptoms are those of renal colic, sharp pain beginning in the kidney region, radiating down the ureter to the groin and testicle, nausea and vomiting, fever and chills, and the picture is the only relatively typical one that we have in lithiasis. Such an obstruction may cause a complete anuria from reflex inhibition of function in the opposite kidney.

Renal colic due to calculus may be confused with a kinking of the ureter, with movable kidney, strictures of the ureter, obstruction due to pressure upon ureter from without, blocking of the ureter with tubercular debris or a blood clot from a renal tumor; nephritis pains, crises of tabes, appendicitis, or gall stones.

A differential diagnosis from these conditions can usually be made by employing all of our diagnostic agents.

If a calculus be lodged in the ureter, it will most commonly take place at one of those points where there is a tendency to a constriction of the lumen, i. e.,  $3\frac{1}{2}$  cm. below the pelvis of the kidney, at the brim of the pelvis, where the ureter crosses the bi-

furcation of the common iliac artery, or in the last 2 cm. of the ureter, where the ureter is constricted by the muscle fibers of the bladder wall. The train of symptoms accompanying the calculus obstruction of the ureter in the upper part of its course is most commonly simulated by gall-stone colic; at the pelvic brim by appendicitis; and in the pelvis, in the female, by disease of the uterus and adnexa.

A glance at the accompanying plate shows at once the close relationship of the ureter at the brim of the pelvis to the appendix and the lower ureter to the pelvic organs in the female. The ureter, although not the primary source of trouble, may be secondarily involved by an extension of an inflammatory process from either, and the picture complicated.

Mrs. H., age 36, past history negative until four years ago, when she was operated upon for double pyosalpinx. Two years later a second operation was performed to free adhesions. One year ago a third operation for the same purpose. Since then she has suffered from sharp attacks of pain in the left lumbar region, radiating to the groin. There has been some urinary frequency, both nocturnal and diurnal. No hematuria. She was cystoscoped and told that she had a calculus in the left ureter. Radiographs were negative.

I saw her four weeks ago. Cystoscopy revealed a normal bladder. Both ureteral orifices were normal in appearance, but functionated slowly. The urine from each was clear. A catheter passed into each ureter was obstructed at the same point, 6 cm. from the bladder. A No. 5 F. catheter would not pass this point. A filiform could be passed on up the ureter on each side. The examination was followed by an attack of renal colic.

I have repeated the examination twice and slightly dilated the strictures of each ureter, and her symptoms are disappearing.

Here we have a constriction of the ureter by adhesions in the region of the broad ligament. When the strictures are sufficiently dilated I will distend the ureters and kidney pelves and an X-Ray picture will probably show a funnel-shaped ureter, with the apex at the point of the stricture of the ureter.

Although the clinical picture may not be a clear one, even in an obstructing calculus, the cystoscope allows an inspection of the ureteral orifice, an encounter of the obstruction with the ureteral catheter and the search of the X-Rays verifies and

clears the finding. The technique of these examinations I will take up presently.

Vesical calculi are primary in the kidney or are secondary to vesical lesions. If primary, the symptoms of renal calculus,

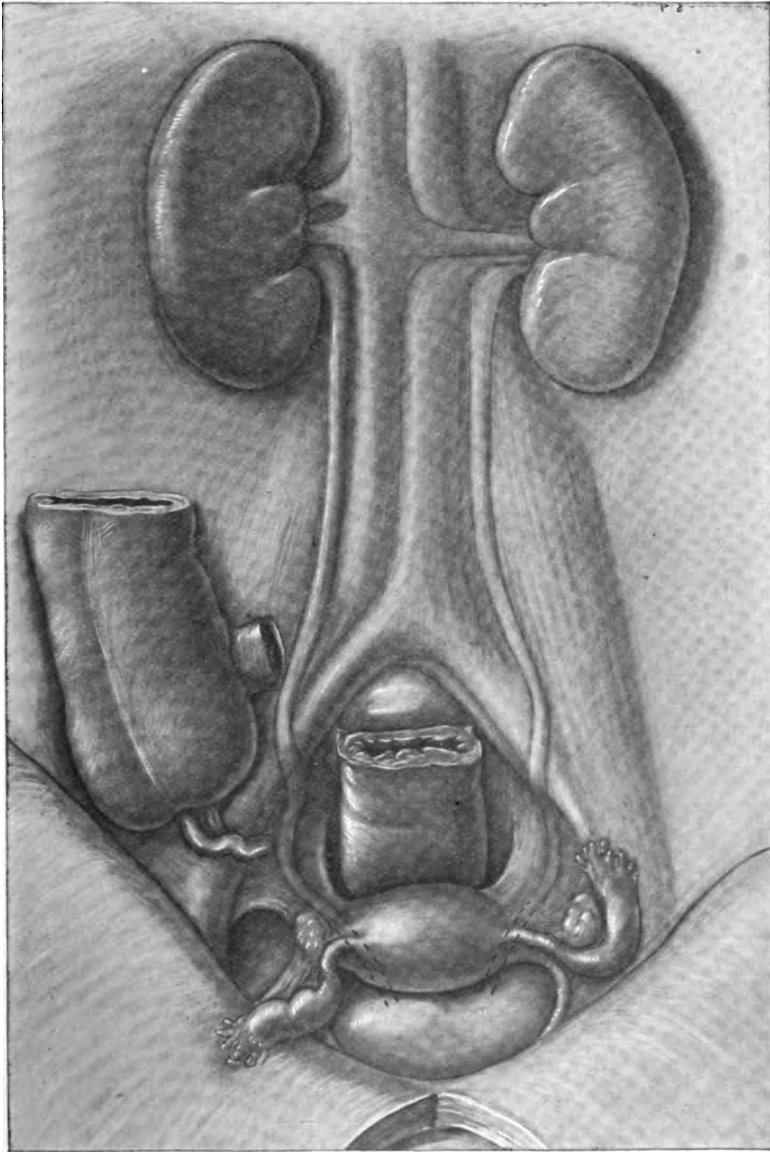


FIG. 1.—Plate showing the close approximation of the ureter to the appendix and uterus and adnexa.

or calculus anuria, may have preceded the bladder symptoms. If secondary, the symptoms of alkaline cystitis are present. Formerly the diagnosis of vesical calculus was often difficult, before the employment of the cystoscope became common practice. It was often doubtful as to whether a vesical tumor, prostatic obstruction or a calculus was the cause of the symptoms. In many cases a searcher will give the characteristic click, but where the calculus is lodged in a sacculum or diverticulum, is encysted or covered with mucus and pus, this method is uncertain. I could cite many cases where prostatic obstruction was supposed to account for the vesical symptoms, but a cystoscopic examination revealed the presence of a calculus either with or without prostatic change. Unless calculi are found with the cystoscope prior to perineal operations on the bladder, they can easily be overlooked.

It is not always possible to differentiate a vesical tumor covered with phosphatic concretion from a vesical calculus. In either condition, the bladder may be contracted, hemorrhage continuous, tenesmus marked and the cystoscopic picture indefinite.

I have several times experienced difficulty in making this differentiation.

Prostatic calculi are rare. They are found in prostates which have been the seat of a long continued inflammatory process, in which the prostate has largely undergone degeneration. The acini are dilated and filled with pus, epithelial cells and prostatic secretions. The stroma is lax. The prostate per rectum feels large, boggy, irregular, and hard nodules may be present. It may be possible to dislodge them by massage, and the patient often passes them when he urinates. In two cases which I have seen recently, in one the presence of calculi had not been suspected, yet on removal of the prostate it was found to contain hundreds of small calculi. In the second, I removed the prostate which had been largely destroyed because of the presence of several stones, easily palpable by rectum, and which caused continuous irritation. One lobe of this prostate had been entirely destroyed.

I cannot take up in detail all the points in the differential diagnosis between urinary lithiasis and conditions giving a similar picture. I will, however, give briefly the technique of special examinations which are essential.

1. The use of the cystoscope in the diagnosis of urinary lithiasis.

A. Vesical Calculi.

A local anesthetic should be used before examining the bladder which is thought to contain calculi. Repeated irrigations of the bladder may be necessary; these irrigations must be carried out carefully; a small amount of fluid should be injected at a time, and only a part of it allowed to run out before the next injection is made. By leaving a small amount of fluid in the bladder all the time, the tenesmus which accompanies the expulsion of the last few drops of fluid is prevented. It may be necessary to use a continuous irrigation to maintain a clear medium. This is necessary as it may be difficult to differentiate a tumor from a calculus. The calculus may be partially hidden from view by being lodged in a sacculation or diverticulum. A tumor covered with calcareous material bleeds more easily, is firmly attached, and does not cast a shadow. If it is impossible to make a differential diagnosis from sight, it may be necessary to rely more upon the history of the case.

B. Ureteral Calculi.

If the calculus is lodged in the terminal portion of the ureter, it may even be visible and can often be dislodged with a catheter. If located near the orifice, but not in view, the calculus will be encountered with the catheter, and, unless dislodged, will prevent its passage. If the obstruction is complete, the ureter will not functionate; if incomplete, the urine, as it comes from the ureteral orifice, will not come in the usual swirl, but will be deviated to one side of the opening.

If the calculus is lodged at the pelvic brim, the catheter will be obstructed about 10 cm. from the ureteral orifice. If at the upper constriction of the ureter 23 cm. from the bladder. The calculus may be too small to cause a complete obstruction of the ureter, and it may be possible to pass such an obstruction with a catheter. I cystoscoped a patient during repeated attacks of renal colic. On the first occasion a calculus was dislodged 2 cm. from the bladder and the obstruction relieved. At the second cystoscopy, three weeks later, an obstruction was encountered at 2 cm. and a second at 8 cm. from the bladder. It was possible to pass these constrictions, dilate the ureter and a swirl of urine was observed coming from the ureteral mouth upon the withdrawal of the catheter, while none could be seen before



its introduction. The obstruction was due to calculi, although no shadow was cast by the X-Ray.

A man 38 years of age was sent to me for a diagnosis. His symptoms were diurnal frequency, pain at the end of urination, referred to the glans penis, pain in the perineum after urination. The urine was clear. The bladder was normal, except in the region of the left ureteral orifice. Here there was a marked edema and redness of the mucous membrane. The uretral orifice was dilated and functionated poorly.

A catheter passed to the right kidney, and, to my surprise, to the left kidney as well. The picture present in the region of the left ureteral orifice was that of ureteral obstruction, probably from a calculus.

Tuberculosis of the left kidney was suspected. Urinary examination was negative. A papillomatous condition was suspected. Radiographs were negative. The patient made the diagnosis by passing a small calculus, which had been lodged in the lower end of the ureter, but had not caused complete obstruction.

One picture was observed in the cystoscopic examination of the patient which I have seen in other like cases. The urine, as it was emitted from the ureteral orifice, did not come out in a swirl, but was deviated to one side of the opening. This, I believe, is pathognomonic of a calculus lodged just inside of the ureteral orifice.

The importance of passing the ureteral catheter to aid in diagnosis was beautifully illustrated by two cases which I have recently seen. In each case the calculus was found causing obstruction in the opposite side from the one where the symptoms were located.

#### C. Kidney Calculi.

The ureteral catheters are of service in diagnosing renal calculi in that they make it possible to separate the urines from either kidney and obtain crystals, blood and pus cells, which information leads us to employ other means for making a positive diagnosis. The wax-tipped catheter of Kelly may be used, but is of doubtful value when a cystoscope is employed in place of a Kelly tube. The wax is liable to be scratched on the cystoscope. The greatest value of the cystoscope and catheter in the diagnosis of renal calculi is when combined with the X-Rays.

2. The use of the X-Rays. Few diagnosticians are as posi-

tive as Kümmell in his statement, "No shadow, no stone," but it is fair to say that in the employment of this agent we have our most valuable asset. Not only does it locate the stone and give us the number, but by the density of the shadow we obtain a clue to the composition. The darkest shadow is cast by an oxalate stone; next in order of density are shadows of cystin, mixed urates, urates and uric acid calculi. The shape of the calculus is shown, as well as the condition of the kidney. An X-Ray picture taken to show a renal calculus or a calculus lodged in the

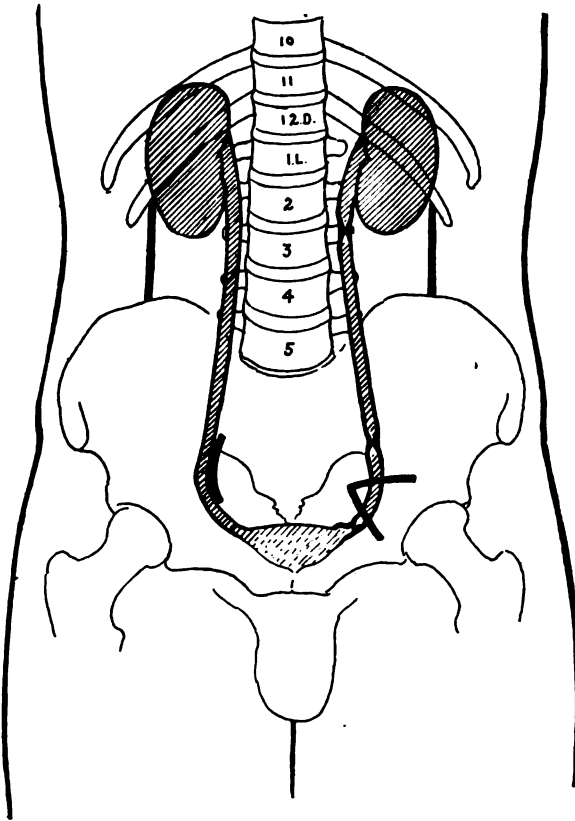


FIG. 2.—Diagram showing outline of urinary tract with reference to X-ray diagnosis. Note mid-vertical line and constrictions of ureter.

vertical portion of the ureter should show, as per diagram, the last two ribs, the 12th dorsal and all the lumbar vertebrae, the crest of the ilium and the outline of the kidney and psoas muscle. If in such a diagram a perpendicular line, which we may call the mid-vertical, be drawn upward from the middle of the crest of the

ilium, we can say that, with few exceptions, any shadow falling on or to the inner side of it beneath the last rib and above the iliac crest denotes a stone in the kidney or ureter, any shadow to the outer side is probably intestinal or due to gall stones. If the calculus is lodged in the renal pelvis, the shadow will be close to the vertebral column, may be triangular in shape; or branching; if the calculus is in the cortex, it will be close to or on the mid-vertical, and will probably be small. If the shadow denotes a pelvic stone, the kidney shadow will probably show an enlargement and degeneration of the organ; if a cortex stone, no kidney change will appear. Many shadows may be present in the kidney and often denote calculi separated by kidney parenchyma or fluid. A shadow cast by a ureteral calculus will lie on a line which touches the tips of the transverse processes of the vertebrae. A like shadow may be caused by an exostosis of a transverse process. A differentiation can be made by taking pictures at various angles, giving a stereoscopic view. These plates will show a separation of the calculus shadow from the shadow of the transverse process.

Shadows of calculi lodged in the pelvic ureter are difficult to differentiate from those cast by phleboliths, cretaceous glands or atheromatous patches. When the shadows are multiple and arranged irregularly along the spinal column or brim of the pelvis, they may be regarded as cast by cretaceous glands. Stereoscopic plates may elucidate the condition, but the next method will be of great value.

3. The combined use of the *cystoscope*, *ureteral catheter* and *X-Rays*. A bougie impervious to the X-Rays, passed into the ureter, will lead to a shadow if a calculus is lodged in the ureter. A calculus may be lodged in a sacculatation of the ureter, or a bowing of the ureteral catheter may take place, thus throwing the stone shadow out of line with the catheter. The shadow of a gland or phlebolith placed in the same line with the catheter will be found to be separated from it when stereoptic pictures are taken. Even then with the most careful technique, shadows of calculi in the terminal portion of the ureter may not show. X-Ray pictures taken after the injection of the ureter and kidney with an opaque silver salt show a dilatation of the ureter above an obstruction, and allow a differentiation of the shadow caused by a calculus in the lumen and a shadow from outside causes. It also shows a stricture of the ureter. It may show a crossed or

double ureter or a single kidney, and differentiates a pelvic from a cortex stone. Collargol and argyrol are the salts most commonly used, but air distension is possible. If the fluid is used, it is injected through the catheter into the ureter and pelvis until it is seen to flow back into the bladder alongside the catheter. None of these methods entail any risk to the comfort or welfare of the individual, and give us opportunities of the utmost importance. They make the diagnosis of lithiasis absolute and pave the way for a perfect cure by skillful treatment.

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Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

## SURGERY OF LITHIASIS OF GENITO-URINARY TRACT

By J. BENTLEY SQUIER, M.D., New York City, New York.

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**I**N the few minutes allotted to me, it is only possible to outline the surgical indications of genito-urinary lithiasis, in a general way. The conception of the disease as having two stages, namely, an aseptic and a septic, is a satisfactory classification from the treatment viewpoint.

A general summing up of the treatment of calculus in any portion of the genito-urinary tract may be made in the one word removal.

The only qualifications to this step would be, in the patient, the existence of some condition making such a procedure hazardous to life, or the presence of multiple calculi in both kidneys. Taking up the various localities subject to calculus formation in order, certain facts present themselves.

Calculus formation in the kidney is primarily due to an abnormal metabolic process in the individual, resulting in an interference of the eliminating power of the kidney, with precipitation of various urinary crystals.

It is a local manifestation of a diathesis, and removal of the calculus is only the first step in the cure of the disease.

It has no predilection for either kidney, and in over 50% of cases is bilateral.

Although a patient may be the host of renal calculi, and such be discovered only at autopsy—death resulting from intercurrent disease—removal is generally considered to be the safest course to pursue, once they are known to exist.

The aseptic stage begins with irritation of the kidney, due to the passage of urine loaded with uric acid or calcium oxalate crystals, continues with the deposit of these crystals in calculus formation, the production of catarrhal or interstitial changes in the kidney, and merges into the septic stage when hematogenous infection occurs.

These changes may be insidious, and years elapse before the gamut is run, but the rule is a progressive destruction of the kidney, through interstitial changes or by suppuration.

Operation for removal is, therefore, indicated, at the earliest possible moment, and the results obtained from the removal of renal calculi, before the septic stage has arrived, are among the most brilliant of surgery. To make this possible, their early recognition is essential.

The searchlight of Roentgen, the shadow catheter of Kolisher and Schmidt, and the silver injected ureter and kidney pelvis, have solved this problem.

In considering the surgery of nephrolithiasis, this classification of a disease into an aseptic and a septic stage is convenient.

The surgery of the aseptic stage comprises removal of the calculus or calculi with or without drainage of the organ.

The surgery of the septic stage requires the removal of the calculus or calculi with drainage, and frequently excision of the diseased kidney.

The surgery of the aseptic stage is completed in one operation. The surgery of the septic stage may necessitate a primary operation for drainage of renal or perineal pus collections, with secondary operation for removal of the kidney.

The history of kidney surgery extends over a period of but fifty years. The earliest operations were undertaken for cancer of the kidney and for ureteral fistula following an ovarian operation, namely, Walcott in 1861 and Simon in 1869. Simon's patient lived many years, and demonstrated that one kidney remaining was sufficient to support life. Walcott's operation was a trans-peritoneal one, and Simon's a lumbar.

Since Simon's operation of vertical lumbar nephrectomy in 1869, other incisions have been devised for exposing the kidney, but, in the judgment of many, Simon's incision stands to-day as the most anatomically correct exposure.

In outlining the technique of removal of renal calculi, I shall first take up removal during the primary or aseptic stage.

The position of the stone or stones in relation to the kidney pelvis or cortex should be ascertained with a mathematical precision before operation. This is usually possible, as has been shown this evening by the reader of the paper upon diagnosis.

To divide the operation into steps, let us first consider the exposure of the kidney, second, the removal of the calculus, and third, the closure of the kidney and wound. Wishing to incorporate in this paper a plea for the vertical lumbar incision for kidney exposure, I shall take the time to briefly describe its advantages.

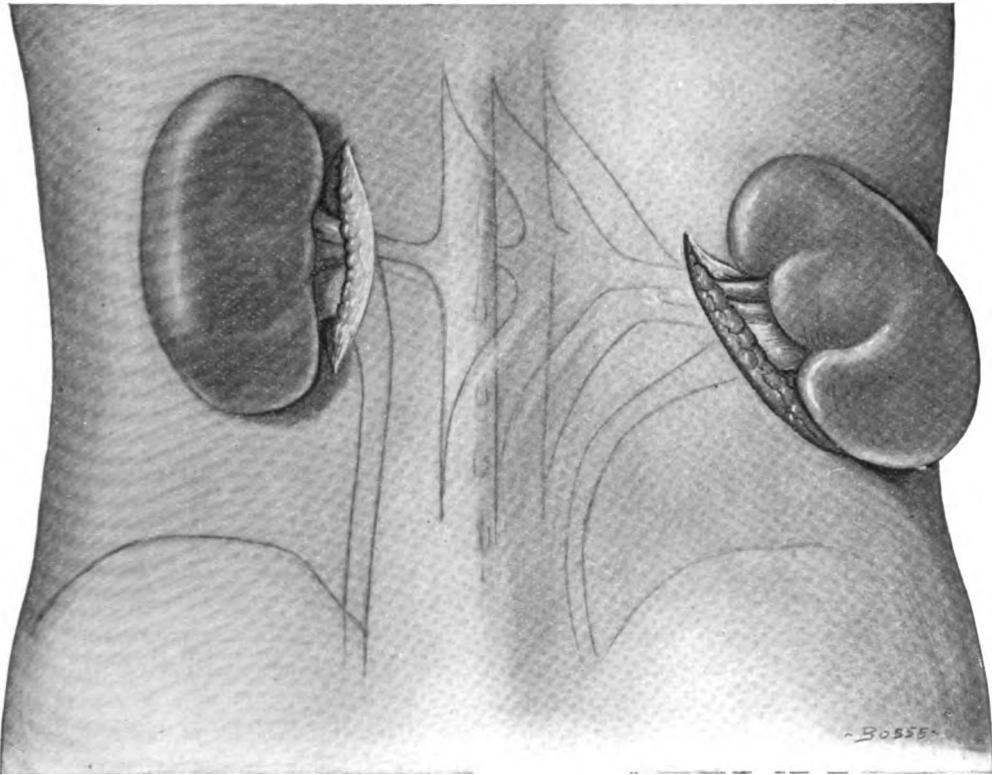


FIG. 1.—Illustrating the difference in degree of tension upon the kidney pedicle, when delivered through verticle or oblique incisions.

It is essentially a muscle splitting exposure, and makes delivery of the kidney upon the flank easier and with less stretch of the pedicle than any of the oblique incisions. The skin incision commences just below the last rib, at the outer border of

the erector spinae muscle, and extends downward almost to the crest of the ilium.

With retraction of the skin, a small triangle is exposed just below the rib, having the *erector spinae* on the inner side, and the *latissimus dorsi* on the outer.

The finger can be pushed down to the lumbar fascia, a few fibres of the *latissimus dorsi* separated, and the perirenal fat presents at the upper angle of the wound. Retract the *erector spinae* inwards, without opening its sheath. Open the sheath of the *quadratus lumborum* along its outer margin. Divide the lumbar fascia lying in front of the *quadratus*. If the last thoracic, iliohypogastric and ilioinguinal nerves which lie between the *quadratus* and the kidney are encountered, they should be pulled aside and not cut.

That delivery of the kidney, through such an opening, is a safe procedure, causing little pulling upon the pedicle, can be easily appreciated by glancing at Plate 1. Through such an incision the kidney is reached nearer the neighborhood of the pelvis, than by an oblique incision. To insure its easy delivery, careful, complete enucleation from its fatty capsule is necessitated.

To accomplish this one must keep close to the kidney, and be on the lookout for adherent blood vessels. These are usually found entering the kidney above the renal artery, and on the anterior surface.

The kidney having been properly freed from its fatty capsule, it is delivered on the flank.

This is the step which the adherents to the oblique incision claim is easier by that method. Nevertheless, while a little more dexterity may be required, and a small hand, will, of course, make for ease; if the lower pole is steadied by a hammock or gauze, as shown in the diagram, and the upper pole delivered first, there is but little difficulty. (Plate 2.)

The kidney having been delivered on the loin, it is turned with its convex border pointing outward. The posterior surface is thus exposed, and whether a calculus is in the pelvis or renal parenchyma, it is preferable to remove it through a posterior incision. This for two reasons: one, because there is less hemorrhage on account of the arrangements of the blood supply, the other, if drainage is necessary, its course is straight.

With the kidney on the loin, if the calculus, whether in the

pelvis or calices, can be removed through an incision in the pelvis, it should be so removed. We have learned the advantage of pyelotomy only in the past few years, the fear of a permanent fistula resulting from such an incision having been disproved.

When opening the pelvis, the blood vessels should be controlled by the assistant's fingers, as illustrated in Plate 3, and the incision should be made at right angles to the kidney, and along the lower border of the pelvis. It should not extend into the ureter for fear of resulting stricture.

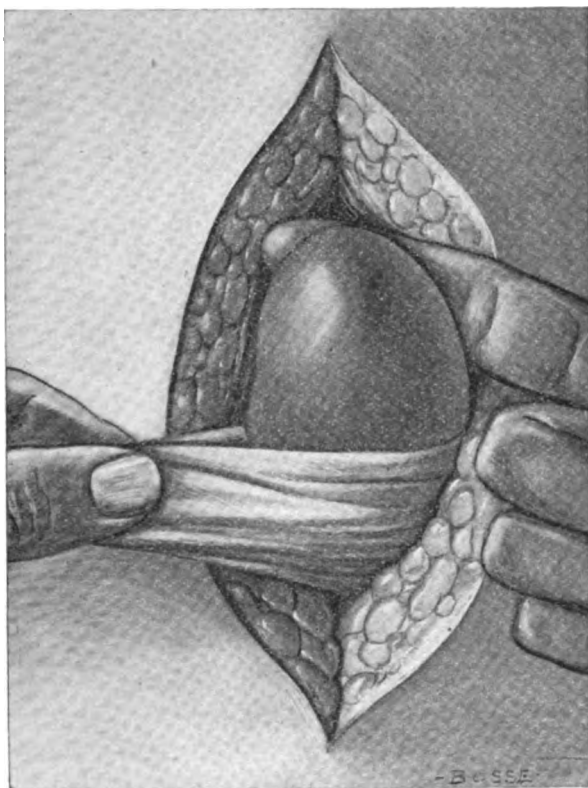


FIG. 2.—Illustrating hammock of gauze used to facilitate delivery of the kidney.

If the calculus is felt before the pelvis is opened, it is well to steady it at the lower border of the pelvis, and open the pelvis as indicated, by cutting down upon the stone.

If the calculus is small or multiple, or situated in the calices, the pelvis may be searched with the finger. Kelly advises dis-



tending the kidney through a ureteral catheter before incision, so that when the pelvis is opened, the pressure of the fluid rushing out will aid in forcing out the calculus.

The calculi having been removed, the incision in the pelvis is closed with a few fine catgut sutures, the kidney replaced, and the wound closed with or without drainage, as the case may indicate. It has been the custom in the past to drain all such cases, but we find that many of these cases require no drainage, or the smallest rubber tissue drain, only for a day or so. Removal of the calculus through the cortex necessitates incision over the stone on a line radiating from the pelvis, or just posterior to the lateral convex border parallel to the long axis of the kidney.

A recent contribution to surgical technique, by Cullen and Derge, shows that if a kidney is opened by a needle threaded with silver wire, and drawn through the cortex, the resultant hemorrhage and subsequent damage to kidney tissue is appreciably less than when the kidney is incised by a knife. Such a method could be ideally used in removing calculi from the cortex.

Wire threaded upon a half-curved round needle could be used, inserting the needle over the calculus, pushing it in until its point touched the calculus, then bringing it out, and pulling the wire loop through the kidney tissues, would open a channel for the removal of the stone.

The size of the needle could be selected to the size of the calculus, and in this way the resultant incision easily controlled.

The specimens of renal calculi which I shall now exhibit<sup>1</sup> are those of the aseptic stage. You have already seen the radiographs of the kidneys from which they were removed. In each instance the pelvis was sutured, and the wound closed with no drainage of the kidney.

Convalescence was rapid, and the wounds healed by first intention.

Turning now to the treatment of the septic stage, a more complex problem confronts us—complications have arisen which become of as great importance as the original disease. The degree of sepsis will influence our operative decision.

A mild pyelitis will require removal of the stone with drainage of the pelvis—an illustrative case is shown by this specimen, which was removed from a patient during the early septic change—a few weeks' drainage of the pelvis resulted in cure. Exten-

<sup>1</sup> Shown at the Clinical Society of the New York Post-Graduate Medical School and Hospital, Nov. 17, 1911.

sive suppuration with destruction of kidney tissues will indicate nephrectomy. An X-ray of such a kidney has been thrown on the screen, and the degenerated kidney specimen is now presented.

When the perirenal tissues have become involved in the inflammation, operating for drainage of the abscess outside of the kidney and of the kidney itself is indicated, leaving nephrectomy to be considered at a subsequent time.

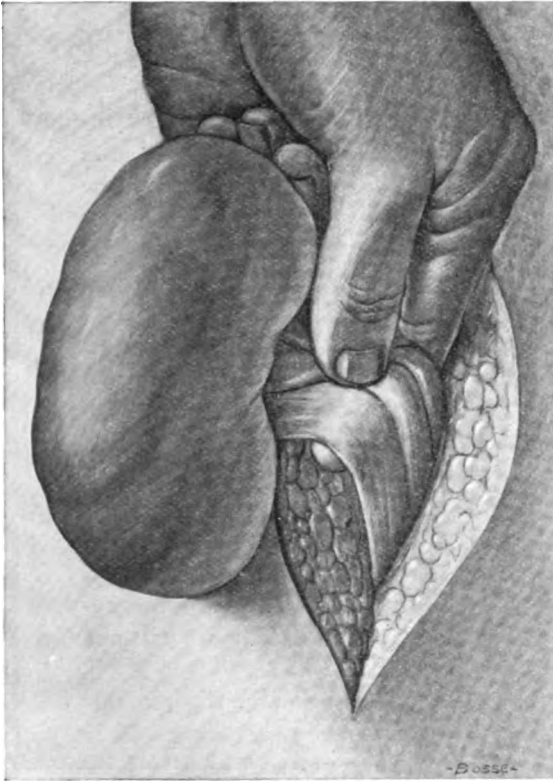


FIG. 3.—Control of blood vessels by assistant's fingers.

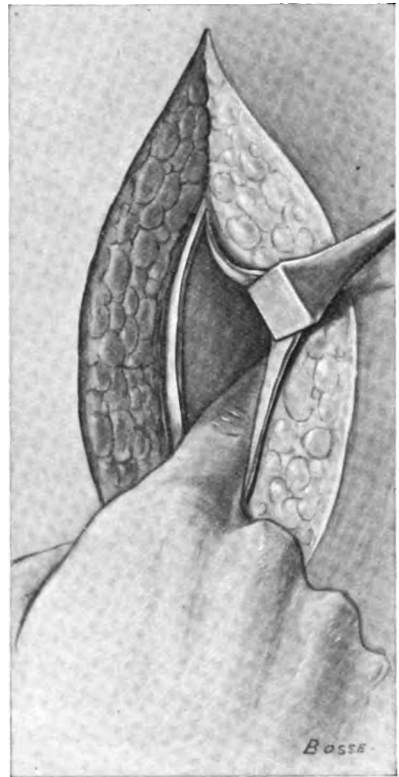


FIG. 4.—Interperitoneal search for calculus impacted at iliac crest.

If a calculus kidney has produced perirenal suppuration, drainage and removal of the calculus is rarely enough to establish a cure. It is almost an axiom that nephrectomy will eventually be necessary. A typical example was seen in this specimen, removed 18 months after drainage of the perirenal and renal abscess.

The first operation was performed when the patient was

in a desperate condition from sepsis. A second, performed a few months later with a view to removing the kidney, was abandoned, because of the lack of surgical skill of the physician who attempted it.

When the patient came under my care, there was a foul suppurating tract, leading down to the remains of the kidney.

Excision of the kidney showed that practically all the kidney had become degenerated, leaving fibrous remains still harboring the primary cause of the infection in its pelvis.

The operative indication in all cases of calculus in a septic state has to be decided upon the individual merits.

There are many instances where one kidney having been removed for calculus disease, the subsequent development of calculi in the remaining kidney has brought up the question of the advisability of operating for its removal. These are difficult decisions to make, as the risk in opening a remaining kidney is indeed great; nevertheless, it is often astonishing what remarkable results follow.

Last September at Dr. Bevan's clinic, in Chicago, he showed a patient, a man about 30 years old, who sometime before had had nephrectomy performed for calculus disease. Symptoms developing indicative of calculus in the remaining kidney, he had applied to the clinic again. Pain (mild in character) and evidence of pyelitis were present.

Dr. Bevan put a hypothetical question to the audience, which was composed of about 40 men, making special study of urology, asking their opinion as to the advisability of operating for removal of the calculus, if it were proven to exist. Almost without exception the answer was to remove it.

A remarkable example of calculus formation in the remaining kidney came under my observation some years ago. It is briefly related as follows: The patient, a gentleman of fifty-four years of age, developed a right pyonephrosis and perirenal abscess from an ascending infection of the bladder. He was a sufferer from complete prostatic obstruction and was on catheter life. The abscess and kidney were drained, and some months later the remains of a degenerated kidney were excised. A lumbar sinus persisted after this operation which discharged urine. This was found not to be due to some kidney tissue being left behind, but from the fact that the ureter had not been included in the ligature, and that the back pressure from the prostatic ob-

structed bladder, forced urine up the ureter and out of the sinus.

A prostatectomy was performed, normal urinary function regained and a closure of the sinus resulted. Two years later he developed calculus anuria in the remaining kidney.

Operation was performed, and the pelvis of the kidney found filled with mortar-like material. This was washed out and the kidney drained. The patient made an excellent recovery, lived three years, and eventually died from pneumonia.

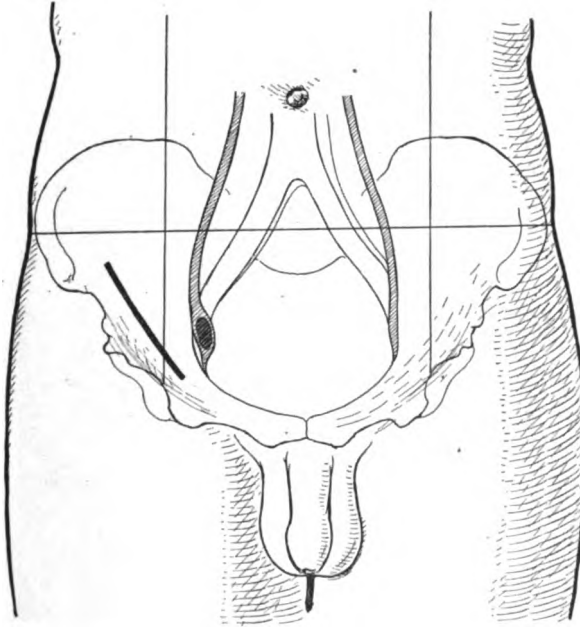


Diagram 1.

DIAGRAM 1.—Incision for removal of ureteral calculus, impacted at iliac crest.

#### CALCULI IN THE URETER.

The incision will depend upon the location of the calculus, an accurate knowledge of which will obviate the necessity of the long incisions, devised to expose the ureter throughout its greater part. Calculi in that portion of ureter near the kidney pelvis can be easily removed through the incision already described for exposure of the kidney.

Stones above the iliac crest should be removed by extra-peritoneal lumbar incision.

At the iliac crest, by an incision similar to the ordinary inter-muscular appendical exposure made low down (Diagram 1). The peritoneum is opened and the calculus located by the index finger of one hand (Plate 4). The index finger of the other hand then dissects back of the peritoneum until the calculus is reached (Diagram 2). In many instances it is possible to then hook the ureter up and bring it out of the wound (Plate 5).

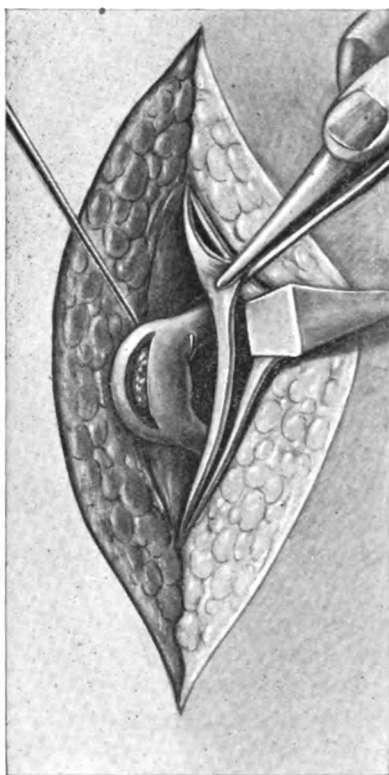


FIG. 5.—Ureter brought out of wound posterior to peritoneum.

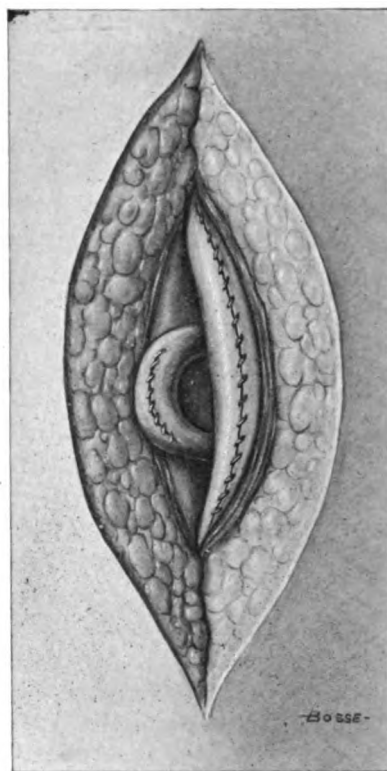


FIG. 6.—Closure of peritoneum and ureteral wound.

The opening in the peritoneum is closed before the calculus is removed from the ureter. The calculus is removed from the ureter by a longitudinal cut made over the stone.

The ureter is sutured with fine catgut, and dropped back in the wound (Plate 6).

It is not always possible to bring the ureter out of the wound, in which event it may not be possible to suture it following re-

moval of the calculus. If the ureter is sutured and no infection is present in the urine, drainage is not necessary.

If drainage is indicated, use folded rubber tissue only.

Stones impacted in any portion of the ureter may sometimes be dislodged by the ureter catheter, with or without oil injections. Soft stones may be broken up in the same manner. Stones impacted in the mural portion of the ureteral orifice,

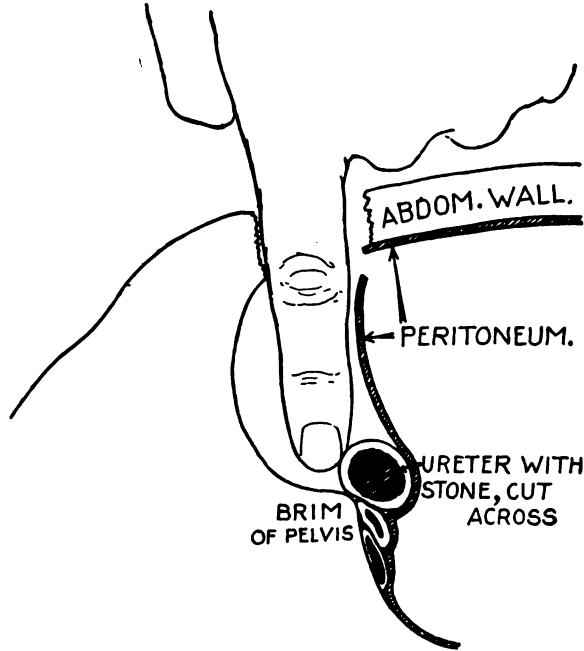


DIAGRAM 2.—Cross section. Illustrating dissection back of peritoneum.

which can not be dislodged by the above method or by operating cystoscope, should be removed by suprapubic opening of the bladder and pushing the stone into the bladder by pressure of the finger in the cellular space outside the bladder.

The calculus impacted in the situation may be caught by an alligator jaw forceps and withdrawn. If no extensive hemorrhage takes place, it is possible to suture the bladder without drainage, merely draining the space of Retzius. The bladder is drained by an indwelling catheter.

The surgery of calculi of the ureter ulcerating through and into other viscera is not considered in this paper, as the operative measures employed belong to the organ or region affected.

## VESICAL CALCULUS.

Removal of vesical calculus involves a decision between litholopaxy and suprapubic cystotomy. It is inconceivable that any surgeon at the present time would consider perineal lithotomy, unless calculus was found to complicate a perineal prostatectomy.

The choice between litholopaxy and suprapubic cystotomy depends upon: 1. Surgeon's skill. 2. The size of the calculus. 3. The presence of obstruction at the bladder neck. 4. The presence of diverticula in the bladder.

A properly performed litholopaxy calls for a very considerable knowledge of the handling of urethral instruments.

The old criticism, that fragments of stone were apt to be overlooked, and left to remain as nuclei for subsequent calculus formation, is not tenable, because it is possible to cystoscope the patient, and exclude such a possibility at the completion of litholopaxy.

The surgeon who refuses to appreciate the wide range of usefulness of litholopaxy is not abreast of the possibilities of modern urology.

The presence of diverticula in a bladder contra-indicates litholopaxy.

When diverticula are present, it is impossible to pump the crushed fragments out of the diverticula. A stone may also be lodged in a diverticula, so that it is impossible to grasp it with a lithotrite.

When stones are removed by suprapubic cystotomy, if no or but mild cystitis is present, the bladder wound should be sutured without drainage, the space of Retzius drained with a rubber-tissue drain, and the bladder kept emptied with an indwelling catheter.

## PROSTATIC CALCULI.

Prostatic calculi are primarily due to changes in the gland secretion, producing concretions from the stratified corpuscles, the corpora amylacea.

They may remain for years without producing trouble. When they increase sufficiently in size, or become encrusted with lime salts to such an extent that they project above the level of the urethra, it is then that they become recognized.

Stones which lie in the prostatic urethra are true urethral calculi, or fragments of vesical calculi.

When removal of prostatic calculi is indicated, perineal ex-

posure with removal of the prostate (which is usually largely degenerated) through lateral capsular incision, is the method of election.

#### URETHRAL CALCULI.

Calculi impacted in the urethra usually lodge at the bulbo-membranous junction, or at the fossa navicularis.

They can, as a rule, be dislodged by some sort of urethral forceps, the ease of so doing depending upon the ingenuity of the surgeon. In rare instances, external urethrotomy may become necessary.



## SEXUAL NEURASTHENIA <sup>1</sup>

By N. P. RATHBUN, M.D.

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O. P. D.

**T**HERE is probably no term in medical nomenclature which is more roundly abused and misused than is the term neurasthenia. For my own part, I am growing more and more to feel that when we apply the term to any given case it implies a deficiency in our diagnostic acumen. I have no doubt that there may always remain a certain proportion of cases in which the diagnosis of neurasthenia will have to stand, but with our improving methods of making diagnoses, added to a patient and perhaps more skilful method of obtaining a complete history of our cases, I am certain that this group will gradually dwindle to an almost negligible quantity.

Neurasthenia, so called; is a symptom complex of an extremely variable character. An enumeration of all or any of the individual symptoms is unnecessary since they are only too familiar to all of us. Given a patient who is suffering and has been suffering for a considerable period of time from a series of vague and indefinite symptoms, more particularly with reference to the nervous system and without any tangible pathological evidences of disease, then we are very prone, mentally or otherwise, to put that patient down as a neurasthenic, or, in our dispensary practice, pass him along with the remark, "He is hyped." Now, right here is the point.

There may be no tangible pathological evidences of disease on a casual observation and examination, but if we will only bear in mind the possible factors which may lie back of this variable train of symptoms and pursue our investigation carefully along one or more of these lines, we will often be rewarded by an accurate diagnosis and be able to cure what is so often considered almost a hopeless condition.

The possible factors and the channels along which this investigation may be pursued are almost as numerous as are the organs in the body, and doubtless everyone who is doing special work feels that the majority of these cases should come within the scope of his particular line. The rhinologist says it is sinuses; the eye man says it is eye strain; the gastroenterologist says it is colonic putrefaction; the general medical man says it is some constitutional diathesis or fault of the metabolism, and many times they are right

<sup>1</sup> Read before the Brooklyn Pathological Society, March 14, 1912.

— perhaps occasionally they are all right, and this particular victim may be suffering from all of these diseases and be suitable game for all these varied specialists. However, I do not profess to be particularly familiar with any of these conditions and they are merely mentioned in passing.

It is the purpose of this paper to call your attention to a group of cases whose circle of symptoms revolves very accurately around the genito-urinary apparatus of the male. I am certain that there are a large number of these cases which present themselves for treatment to every member of this society, unless his practice is limited exclusively to gynecology, and I doubt if there is any class of patients in whom the real cause of trouble is more frequently overlooked.

Just a word of anatomy here. The prostate gland, as you all know, is situated at the base of the bladder and surrounds the posterior or prostatic urethra. It is composed of muscular and glandular tissue and is very richly supplied with blood vessels and, what is more to the point in a paper of this sort, abundantly supplied with nerves from both the sympathetic and cerebro-spinal system. Above the prostate and intimately associated with the posterior wall of the bladder, are the seminal vesicles whose walls, composed of fibrous and involuntary muscles fibres, admit under normal conditions of only a moderate amount of distention. On the floor of the posterior or prostatic urethra there is a small elevation — the colliculus or verumontanum, composed entirely of erectile tissue and remarkably rich in its nerve supply.

Without going deeply into the mechanism of urination and coitus, suffice it to say that these structures, particularly the colliculus, are intimately concerned with these acts. These facts are briefly mentioned because it is here that we find so frequently tangible evidence of pathological lesions in cases of so-called neurasthenia.

Cases of sexual neurasthenia may be divided roughly into three groups: —

First: Protracted cases of chronic gonorrhea with involvement of the prostate. In this group of cases the local symptoms predominate and it is the persistent urethral discharge which brings the patient to the doctor's office. These cases are all more or less neurotic, partly, no doubt, through worry over a condition which seems so resistant to treatment, fear of losing their sexual power, or, perhaps, they are engaged to be married and are worrying as to when they may set the date for the wedding. In addition to these factors, there is a series of variable nervous phenom-

ena which are a definite part of the symptomatology of the disease, in much the same way that optimism is a classical condition in pulmonary tuberculosis. Conversely, however, pessimism is the usual condition in a chronic gonorrheal prostatitis. The diagnosis in this group cannot well be missed since the patients apply for relief of their local trouble. The treatment is, of course, the treatment of chronic gonorrhea and is not within the scope of this paper.

In the second group of cases belong those patients who have never had venereal disease, or if they have had, it has been cured, but who present themselves with symptoms referred more or less definitely to the genito-urinary organs, such as frequency and urgency of urination, nocturnal emissions, premature ejaculation, failing sexual power, sacral ache, bearing-down sensation, perineal pain, etc., all these associated with a general hypochondriacal demeanor. Most of these cases if tactfully questioned, will give a history of past or present sexual excesses, and examination will usually disclose a large, soft, boggy prostate, the seminal vesicles distended and with atonic walls. Examination of the posterior urethra with an endoscope will show the colliculus swollen and congested as if it were in a state of more or less partial erection. These cases are very materially and often quite promptly benefited by massage of the prostate and vesicles, passing of full sized sounds and, later, local applications through an endoscope of strong silver nitrate solutions to the colliculus combined with the general tonics or nerve sedatives as they seem indicated. Not only do the local symptoms improve, but the general nervous symptoms as well.

The third group of cases are those who in recounting their symptoms make no reference to the genito-urinary organs. They complain of sleeping poorly; their appetite is capricious; they have headache, irritability, apprehensiveness, inability to concentrate their mind on their work, vasomotor disturbances, hot and cold flashes, alternating periods of mental exhilaration and depression, etc. It is in this group particularly that we are apt to overlook the real cause of the trouble. In not all, to be sure, but in a surprisingly large number, careful questioning will elicit other symptoms, to which the patient may have attached little importance, but which will direct us into the proper channels of investigation. They will often confess to past or present sexual excesses and perversions. There will be some disturbance of the sexual function, such as deficient or inordinate sexual appetite; insufficient erections; premature ejaculation, etc., together with some or all of the symptoms mentioned in the second group. A careful and thorough

genito-urinary examination may show no tangible lesion except in the colliculus, but it is truly astounding how much pathology may be located in this little organ; sometimes we will find it swollen and livid, but more frequently in my experience with this type of case, we find it pale and distorted, presenting occasionally the appearance of a papilloma. This appearance I assume is due to a round cell infiltration and later to the formation of fibrous tissue. I further assume that a large number of highly sensitive nerve endings are caught up and pressed upon by the contractile and contracted scar tissue, thus clearly accounting for the various reflex symptoms observed in these cases. I find that the topical application of pure tincture of iodine once in four or five days, is more beneficial here than the silver salts which are more commonly used. These patients will also usually require general hygienic and medical treatment, together with intelligent sympathy, encouragement and suggestion.

In conclusion, I will not pretend to say that all neurasthenics are genito-urinary cases, but I do maintain that many of them fall in that category. It is the purpose of this paper to emphasize the importance of bearing this possibility in mind when making our diagnosis and to point out how simple it is to recognize and treat these cases if we look, for them.

The two most important factors are:

1. A careful history.
2. A thorough examination of the posterior urethra.

Various ingenious instruments have been devised for this purpose. Personally, I know of nothing more satisfactory than the Swinburne posterior urethral endoscope. The technique is very simple and anyone can master it with a very little practice. The patient, with an empty bladder, is placed in the lithotomy position. The instrument is passed all the way into the bladder and the obturator withdrawn; the urine is mopped away with cotton applicators and when the field is dry the light is turned on and the instrument is then slowly withdrawn into the posterior urethra. As the fenestrum passes over the colliculus it actually pops up into the field of vision, where it can be carefully studied and accurately treated.

This paper has treated only of the broad generalities of this subject without discussing in detail any phase of it. Some of these patients, no matter how treated, are very rebellious to treatment — hopelessly so at times, but there is a large majority which, if properly handled, may be enumerated among our most brilliant successes and gratifying results.

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## REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman  
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### REVUE CLINIQUE D'UROLOGIE

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#### 1. Spontaneous Hemorrhage in Prostatics.

Besides complicating hemorrhages due to renal neoplasm, renal calculus, hemorrhagic nephritis, primary vesical or prostatic neoplasm, there are causes of bleeding in cases of prostatic hypertrophy which are not so clearly understood.

Hematuria referable to the hypertrophied prostate may be classified as induced or spontaneous. Setting aside the evident causes of bleeding such as the passing of sound or catheter, the sudden evacuation of the bladder contents may be mentioned. It is a factor leading to hematuria particularly in cases of arteriosclerosis in which (despite the absence of any inflammatory lesion of the urinary tract) hemorrhage is believed to be due to the rapid reduction of the tension in the renal pelvis leading to rupture of the friable capillaries. In cases of retention, too, the vesical mucous membrane may be provoked to bleed from the same cause.

As for spontaneous hematuria this may occur wherever hemorrhagic cystitis is associated with prostatic hypertrophy.

The question as to whether simple congestion of the prostate is responsible for spontaneous bleeding has been variously answered by different authorities. Thus, according to Thompson, the surface of the prostate may ooze spontaneously or bleeding may be provoked by the passage of a sound. Tuffier believes the

congestion of the glands to be sufficiently intense to result in bleeding without further cause. Guyon, on the other hand, is quoted as voicing the opinion that hemorrhage only occurs after traumatism such as is produced by catheterization.

Together with Suarez the author investigated this question in order to determine whether or not the gland itself may bleed. Having had occasion to perform autopsies on several cases with severe hematuria, the author found the vesical mucosa (and sometimes also the urethral mucous membrane) red, congested and covered with vascular excrescences. In these cases, there was doubtless a condition of cystitis or urethrocystitis characterized by the formation of vegetations.

In a study of 90 specimens of "hypertrophied" prostate, 30 of which were scrutinized for vascular lesions, the following data were obtained:

1. The vessels were normal in 16 cases.
2. There was simple congestion in 5 cases.
3. The vessels were numerous showing endo- and periarteritis in 9 cases, without, however, any trace of intra-prostatic hemorrhage.

Two cases of true bleeding in the prostate came under the observation of the author and his collaborator Suarez. One of these presented almost the picture of angioma in the substance of the gland, the new-formed vessels probably being of inflammatory origin. Here the hemorrhage was veritably intraglandular there being no hematuria. A second instance occurred in the case in which profuse vesical bleeding set the indication for operation. A friable mass was found occupying the right lobe of the prostate, rupture into the bladder having occurred. Microscopic examination revealed a picture not unlike the last one cited, the tumor being composed almost wholly of new-formed, dilated vessels.

Reviewing the facts concerning hemorrhage in the prostate, Motz summarizes as follows:

1. Intra-prostatic hemorrhage exists, although very rare, but two cases being now on record.
2. It is not occasioned by simple congestion of the gland, but due to the formation of new vessels that are probably of inflammatory origin.
3. Hematuria took place in but one instance.

Investigating the cause of hematuria in two cases of prostatic "hypertrophy" with the Goldschmidt posterior urethroscope,

the author found a picture that explained the cause of the bleeding. The supramontane (between the sphincter and verumontanum) region was enlarged, its surface bosselated; the mucous membrane was congested, and there were polypoid vegetations that were easily caused to bleed. In view of the great predisposition to hemorrhage in all prostatics on the passage of sound, the author believes that a condition of chronic posterior urethritis (at times with polypoid outgrowths) exists in most cases. The circulatory stasis may easily provoke rupture of a capillary or of a papillary excrescence or vegetation in such cases.

As a therapeutic measure he recommends the catheter à demeure, which by virtue of its effect in suppressing contractions of the posterior urethra, soon brings about a cessation of the hemorrhage. Instillations of silver nitrate are also of value.

## 2. Prostatic Lithiasis.

This paper which is appearing in serial form, will be abstracted in a future issue.

## 3. Treatment of Urinary Tuberculosis with Tuberculin.

Dandoy reviews some of the more recent literature concerning the value of the tuberculin therapy, and cites Mantoux's report in which 70 cases were collected. Of these, the percentage of cured cases was 33, of the improved, 48, of the unimproved 11; and the mortality was 8 per cent. This author concludes that:—

1. Tuberculin is an efficacious remedy in urinary tuberculosis.
2. In 11 of the above cured cases, there was renal tuberculosis.
3. Improvement took place both as regards the local and the general state. The gain in weight is considerable.
4. The tuberculin treatment is indicated under the following circumstances:
  - (a) In all cases of vesical tuberculosis in which renal localization cannot be made.
  - (b) In bilateral renal tuberculosis and in tuberculous involvement after nephrectomy.
  - (c) As post-operative treatment after nephrectomy.
  - (d) In early unilateral renal tuberculosis.
5. If, however, the kidney shows marked lesion, nephrectomy is indicated.
6. The treatment should be carefully carried out, the patient himself assisting assiduously in making clinical observations,

for the detection of minute reactions will aid in preventing accidents.

7. The tuberculin method is not incompatible with the employment either of local or general methods of treatment.

Dr. Keersmaecker, who has made a special study of the method in question, recommends the use of very dilute doses.—(T. O. 11,000,000.) Dandoy has followed this author's teachings, mindful, however, of the necessity of surgical intervention even while the tuberculin treatment is being conducted. For even when the affected kidney is removed, the presence of other tuberculous foci must be regarded as more than likely, the method being also of value as a prophylactic against the involvement of the other healthy organ.

With the dilutions suggested, a general reaction with an accession of fever is rare. Indeed a state of apyrexia is to be sought. Although local reactions at the point of inoculation are almost unknown, focal reactions manifested either in the bladder or in the kidneys are sometimes observed. When such occur, the medication is suspended for a time.

Hetol (cinnamic acid) by intravenous injection was found of value when employed concurrently with tuberculin. Although this agent does not influence the processes in the urinary tract directly, the general condition seems to be distinctly ameliorated by it. Two injections are given a week in the vein of the arm, the initial dose being 1/10 of a c.c. of the 1 per cent. ampoules, an increase by multiples of 3 being made with each dose. When one has given 9 mg., a 2 per cent. solution is used, the doses being increased as before up to 20 mg. This dose may be given for a long time, even for 6 months.

The author gives the histories of 8 cases which support his contention that the medical treatment of urinary tuberculosis has a distinct place in rational therapy.

#### 4. Albuminuria and Ureteral Catheterization.

Both because of the frequent occurrence of traumatic bleeding from the ureter after catheterization, and because of a number of paradoxical findings, Gauthier concludes that it is useless to look for albumin in specimens obtained by ureteral catheterization, for the data thus obtained are misleading.

#### 5. Vesiculitis.

The author deplors the lack of interest manifested by students of urology in the seminal vesicles and reviews some of the



more useful methods employed by him in the diagnosis and treatment of acute and chronic inflammations affecting them. Normally the spermatic reservoirs may easily be separated from the posterior wall of the bladder there being no adhesions to the rectum. In disease, especially in tuberculosis, the vesicles become thickened, infiltrated, are surrounded by a process termed perivesiculitis which results in a chronic state of adhesion. Vesiculitis is always of bacterial origin, the mode of infection being either hematogenous or canalicular. In certain rare instances, the inflammation is associated with a general infection such as grippe, scarlet, or typhoid fever.

Acute seminal vesiculitis is due to invasion with the gonococcus. Insomnia, gastric disturbances and local phenomena mark the occurrence of sudden involvement. There may also be discomfort in the perineum, irritation of the bladder and rectum, dysuria and rectal tenesmus. The process may terminate by simple resolution, by induration or by the establishment of a chronic state. Even abscess formation may result.

As for the chronic form of the affection, its insidious character is characteristic.

Setting aside the tuberculous form, the gonorrheal type interests us most, since it is so often overlooked, being frequently unattended by any other symptoms than a morning drop. In making a diagnosis, the author has adopted the following method:

The patient having held his urine for over two hours is instructed to divide the specimens thus:

1st glass. A sufficient amount is passed to clear the urethra; the accumulated secretion in the urèthra and that originating in the urethra, in the prostate, vesicles, bladder or kidneys will be voided.

2nd glass. The urine will be clear or cloudy. If clear, the upper urinary tract and bladder are free. If cloudy, the pus or secretions come from the kidney, ureters or bladder, and the bladder must be washed for the tests.

3rd glass. Thorough massage of the penis and perineum to empty all glands is followed by filling a third vessel which is either clear or contains secretion to be examined.

4th glass. The prostate is massaged, the urine then washing away the contents.

5th glass. One vesicle is stripped.

6th glass. The other vesicle is expressed.

The treatment recommended consists of bi- or tri-weekly séances of 3-5 minutes long, during which thorough massage of the vesicles is carried out.

#### 6. Plastic Induration of the Corpus Cavernosum.

Although this affection has been recognized for a long time, Zislin was able to collect but 26 cases, although the records of over 30,000 patients were included in the investigation. The author, however, saw three cases within three years, two in young men, and one in a man of 60.

Although certain authors have been able to effect a cure by ionization in one case and electrolysis in another, most methods have been ineffectual. The author conceived the idea of employing X-ray treatment with the gratifying result of cure in one case.

In a young man of 34, there developed on the dorsum of the penis two elongated almost rectangular indurated plaques about 3 cm. long. The urethra was found free, micturition being unaffected although erections were markedly impaired. After five exposures to the Roentgen rays, the affected areas had softened somewhat and after eighteen treatments the lesions were practically cured.

The Chabaud tube with a secondary current of 6-8 M. Amp. was employed, for 15-20 minutes, once a week. After every 5 sittings an interval of 15 days was allowed.

#### 7. The Abortive Treatment of Gonorrhea.

Reviewing in detail some of the more important types of abortive treatment suggested in the past, Montfort points out that, in his opinion, there are four characteristics of a good method.

(1) It should not be injurious to the urethra, for no matter how rapid the effected cure may be, this should not take place at the expense of the integrity of the mucous membrane with consequent danger of stricture formation.

(2) It should be of short duration, Moran having correctly said that the ideal method would destroy the gonococcus in a single treatment. However, a method that accomplishes the desired result in 2 or 3 weeks could justly be classed under the abortive type.

(3) It should be applicable to a large number of cases and limited by few restrictions. An abortive method that must be instituted within the first 12 hours after the appearance of the discharge is not of practical value.

(4) In case of failure, one must be able to proceed with the ordinary therapy without having done anything to increase the duration of the disease.

The various methods may be briefly summarized as follows:

*The Treatment of Guiard* consists in through and through irrigation of potassium permanganate twice daily in solutions of 1:6000 — 1:10,000 after cocainization of the urethra, injecting 5-600 gm. of solution with a syringe. This author claims 87 per cent. of cures when treatment was begun on the first day of the discharge, 83 per cent. for the second day, 60 per cent. for the third day, 25 per cent. for the fourth day and 11 per cent. for the fifth. He does not advise the method after the third day. Treatment is carried on from 4-8 days with 6-12 irrigations.

*Lebreton* employs permanganate of potash in a dilution of 1:5,000, twice daily for 4 days, in the same manner as above, the patient using the anterior injections every four hours. After the fourth day only one irrigation is given. Of 19 cases, 17 were cured, the duration of treatment being 3-15 days. Of the cases treated within 24 hours after the appearance of the discharge, 9 out of 9 were cured; after 36 hours, 3 out of 3; after 48 hours 2 with one failure; after 3 days 3 cures and one failure. If the gonococcus persists after 8 days the method is discontinued.

According to *Motz*, it is best to precede the permanganate solution with an injection of 3-4 c.c. of a 2 per cent. silver nitrate solution, this being held two minutes in the anterior urethra. Twelve hours later a through and through irrigation with 1:1,000 potassium permanganate is given. On the second, third and fourth days an anterior lavage with 1:2000 permanganate is given, and in the evening an urethro-vesical irrigation after cocainization. These latter washings are continued once daily after the fifth day until the discharge has completely subsided and the first urine is wholly clear. This author's statistics show that:—

- 48 cases lasted less than 10 days
- 66 cases from 10-15 days
- 47 cases from 15-21 days
- 20 cases from 21-28 days
- 2 cases from 28-35 days
- 3 cases more than 35 days

Motz recommended only such cases for this method as present the following conditions:—

1. A duration of the infection that is no longer than 6 days.

2. The meatus must not be red and swollen.
3. The secretion must not be abundant.
4. The canal should be normally sensitive.
5. The second glass should be clear; and,
6. No intercourse should have taken place since the infection.

*Engelbrecht's Treatment* was devised for cases in the first or second day of the gonorrhea, without inflammation of the meatus, and with the first urine clear with flakes. A solution of silver nitrate of 1/2 per cent. strength is employed, the urethra being irrigated with 500 c.c. The fossa navicularis is treated with a 3 per cent. solution. Four hours later, after preliminary cocainization, a second lavage with .2 per cent. solution, is given. Of 30 cases 26 were cured in one-half to two days, and only in 4 cases was there a recurrence. This treatment has the advantage over others in affecting a rapid cure.

Montfort, in his experience with the Engelbrecht method, also had good results, but feared that the integrity of the urethra might be compromised, from the fact that excessive pain was often produced.

The method of Stockmann differs from those heretofore cited in the drug employed, protargol being used, in dilutions of 4, 5 and 6 per cent. with 4 per cent. glycerine, and 3 per cent. anti-pyrin. Furthermore, the application of the solution is made by means of a Guyon syringe, the canula being introduced up to the vesical neck. The canula having been withdrawn slightly, 3 or 4 c.c. of the solution are forcibly injected in order to assure sphincteric contraction and occlusion of the bladder. As the syringe is gradually pulled out, the contents are emptied into the urethra. The patient holds the injected fluid 12-15 minutes. This treatment is given 3 days later, the patient using protargol ( $\frac{1}{8}$  to  $\frac{1}{2}$  per cent.) in the meantime.

The conditions for success are put down as follows:—

1. The duration of the discharge must be less than seven days.
2. It must be neither abundant nor purulent; and,
3. The posterior urethra must show no signs of involvement.

Stockmann reports in the 100 abortive treatments, that the gonococci disappeared in 38 cases after the first séance; in 9 cases after 8 days; in 14 cases after 3 weeks; in 15 cases, the cocci could be found after 3 weeks. Twenty-four cases could not be

followed. The undesirable feature of this method, according to Montfort, is of course, the introduction of an instrument, during the acute stage of the disease.

*Carle's method* consists of using protargol in 2 or 1 per cent. solutions, three times a day, the first two injections being held 2-3 minutes, the third, 3-10 minutes.

*De Sard* recommends argyrol, 10 cm. of a 10 per cent. solution being held 5-6 minutes, twice daily. The urethro-vesical irrigations are given when the posterior urethra is involved. Of 12 cases treated, 3 were cured in 6 days, 4 in 8 days, 5 in 10 days, and 42 more advanced cases were cured in one to three weeks. The procedure is entirely painless.

*Janet*, in 1910, utilized argyrol twice a day for irrigation, in 2-4000 dilution followed by injections of 5-20 per cent. for cases with a discharge of less than 48 hours duration. In successful cases the desired result is obtained in 5-7 days. If this fails, permanganate of potash is used. In 1911, Janet advised using argyrol only in those cases in which the discharge lasted no longer than 12 hours. The argyrol solution was used in dilutions of 2-5 gm., to 500 c.c., for the through and through irrigations, and 5-20 per cent. for the injections. A cure was obtained in all cases.

The author of the paper employs a modification of the treatment of Motz, substituting protargol for the silver nitrate, this being continued until gonococci have definitely disappeared. The conditions upon which success depends are:—

1. The absence of redness and swelling of the meatus.
2. Clearness of the second urine.
3. The presence of only a moderately abundant secretion.
4. The absence of painful micturition, and,
5. The absence of paraurethral passages or diverticula of the meatus.

After cleansing the glans with oxycyanate of mercury a fresh 5 per cent. solution of protargol (with  $\frac{1}{2}$  volume of 1 per cent. cocain) is injected so as to fill the canal for two minutes. Then a second anterior injection is given, the anterior urethra being well distended. Five or six hours later an examination for gonococci is made. If these are absent, a 2-4 per cent. solution of protargol is employed twice daily for 2 days and once daily on the 3rd and 4th days. No treatment is given on the fifth day and the last injection on the sixth day usually results in a cure. If gonococci are present after the first treatment, the author aban-

dons the use of protargol and tries the urethro-vesical lavages with protargol according to Motz, giving two treatments daily, one being an anterior irrigation with 1:2000 permanganate of potash, the other a through and through washing with 1:3 or 4000. This carried out for 4 days and thereafter only twice a day until the first urine is clear.

Montfort treated 27 cases of recent infection, the duration of treatment being 4 days in one case, 6 days in twelve cases. All these received protargol exclusively. They were all examined several weeks later and received the customary provocative tests.

The author is firm in his belief that the abortive method should receive a more prominent place in our routine procedure than has been generally accorded it in the past.

#### 8. Mechanical Treatment of Inflamed Urethral Glands.

A study of the minute anatomy of the urethra and periurethral tissue cannot fail to bring forth the explanation for many instances of recrudescence after a cure has apparently taken place. The glands of Littre will be found to lie some distance from the urethra, demonstrating the impossibility of affecting them by simple medicinal injections. There may be purulent glandular lesions, or the orifice of the gland may be occluded, the gonorrheal process progressing in the depths. Inasmuch as metaplastic epithelium, i.e., a horny squamous layer, often covers the glands, we cannot expect a therapeutic result unless some mechanical method of treatment is employed.

Dilatation of the urethra has a certain amount of value, particularly when done with the instrument of Kollmann, although it is always well to precede this with stretching over bougies.

Massage of the urethra over a bougie, as suggested by Motz, aids in evacuating the glands of their contents, produces hyperemia, thus favoring the resorption of infiltrations. A straight, metallic sound, preferably as large as will easily pass, is recommended for this purpose, and should be introduced no farther than the bulb.

The author considers the combined electrolytic and massage treatment to be very valuable if carried out carefully and in a painstaking manner. Infiltrations will often respond to this procedure when single dilation has utterly failed. It is well to give weekly sittings, placing the positive pole over the abdomen. To avoid a caustic action it is best to refrain from surpassing 5-8 milliamperes.

Renewing the history of the aspiration method, Palazzoli

cites the word of *Stordeur*, (1905), who applied the suction method of *Bier* to the urethra through a perforated tube.

The séances were given every 6-8 days. *Cariani*<sup>1</sup> described method in which aspiration and irrigation are combined. *Bronner*, too, almost the same time, constructed an apparatus (see Fig 1.) which was originally furnished with two rubber bulbs. More recently the suction bulb has been replaced by an aspirating apparatus fitted with a manometer so that the evacuating force can be nicely measured and controlled. (Fig. 2). The instrument is left *in situ* for about 10-15 minutes, the treatment being given every other day.

*Palazzoli* begins as a rule with simple dilation followed by a massage. If the results are not satisfactory, he tries electrolysis and aspiration.

### FOLIA UROLOGICA

Vol. VI., No. 7, December, 1911

1. Contributions to Urethroscopy of the Anterior and Especially the Posterior Urethra. H. Wossidlo.
2. The Exposure of Both Kidneys in Renal Tuberculosis. G. V. Illyés.
3. Concerning the Technic and Results of Suprapubic Prostatectomy in Two and Three Stages, with Personal Observations. B. N. Cholzow.
1. Contributions to Urethroscopy of the Anterior and Especially the Posterior Urethra.

The author emphasizes the fact that the rational treatment of chronic gonorrhœa is not possible without the aid of urethroscopy. For the anterior urethra, the Nitze-Oberländer urethroscope is far superior to the Goldschmidt instrument for with the latter the various color effects are lost and only the marked infiltrative lesions are visible. With the Goldschmidt instrument changes affecting the lacunae are not so distinct; whereas polypoid formations and diverticulae show up well. It is therefore advisable to examine with both instruments. Causes of persistent urethral discharge, such as folds, and diverticula can be diagnosticated only by the aid of the urethroscope. Irrigation urethroscopy has considerably advanced our knowledge of the anatomy and pathology of the posterior urethra, especially of the sphincteric region, which, with the older instruments, was not visible.

Chronic posterior urethritis may give rise to the following symptoms: dysuria, hematuria, recurring discharge and sexual manifestations. Chronic posterior urethritis shows the following pathological changes: the mucous membrane appears loose, uneven and wrinkled,

<sup>1</sup> *Cariani's* method was abstracted in the American Journal of Urology, Jan., 1912, Page 23.

with a proliferation of the blood vessels. Scattered over the surface are red spots which are either hyperemic or small erosions. Often small white shreds are seen floating in the irrigation fluid. The author thinks these are epithelial shreds. Polypoid proliferations of the mucous membrane are frequently encountered. The vesical sphincter in chronic posterior urethritis may show the following changes: instead of a half moon-shaped fold with a smooth edge, the sphincter is irregularly thickened in spots or fimbriated, and, instead of a concavity forms a convexity. At times small granulations or large papillomatous formations are seen on the upper and lateral borders. In prostatitis the walls of the posterior urethra become rigid and do not give way before the water pressure; often berry-shaped proliferations of the mucous membrane with an increased number of blood-vessels are seen, so that the mucous membrane assumes a raspberry-like appearance. The large patulous and rigid openings of the prostatic ducts are often visible. The colliculus seminalis may be involved without an accompanying prostatitis, in fact, a colliculitis can give rise to the same symptoms as a prostatitis. The changes in the appearance of the colliculus as a result of gonorrhea vary according to the stage of infiltration. In the mild cases the colliculus is swollen it may be many times its natural size, the surface is very red and irregular and resembles a raspberry. In the hard infiltrations the colliculus becomes flat, uneven and of a yellowish or gray-white color. The surface may be smooth or very irregular and covered with small white villi, or larger polypoid formations. Cysts of the colliculus are at times encountered. Strictures of the posterior urethra are very infrequent, the author has seen but one well developed case.

Posterior urethroscopy has disclosed causes for many symptoms that were formerly considered under the head of sexual neurasthenia. Numerous authors have called attention to definite urethroscopic findings in impotence, prostatitis, ejaculatio praecox, and pollutions. The lesions of chronic posterior urethritis are best treated urethroscopically. The milder conditions of the colliculus generally respond to Tinct. of Iodine and Silver nitrate (20 per cent.). If these measures fail, galvano-cautery should be used. The papillary excrescences should be removed by curettage. The irrigation urethroscope is a valuable aid in the diagnosis of prostatic hypertrophy showing especially well the so-called "barrière" which frequently causes retention. Galvanocaustic incision of this barrier by means of the operative urethroscope often gives favorable results, but recurrences are frequent. Tubercular affections of the posterior urethra have been diagnosed urethroscopically; the author thinks, however, that the use of the urethroscope is contraindicated in this condition.



## 2. The Exposure of Both Kidneys in Renal Tuberculosis.

In renal tuberculosis it is not infrequently difficult to decide which kidney is affected. Because of profound vesical changes it may be impossible to use either the cystoscope or the segregator. In these cases the author considers the exploratory exposure of both kidneys in conjunction with cryoscopy the best procedure. Exclusion of a kidney is unsatisfactory and unreliable and ureteral catheterization after suprapubic cystotomy is a very difficult procedure in a diseased bladder. The method of procedure in bilateral exposure of the kidneys is to first cut down on the presumably healthy organ by a small lumbar incision. The kidney is dislocated, inspected and palpated and if normal replaced and the wound closed. The diseased kidney is then exposed and excised. The author has used this method seven times in 109 cases with satisfactory results.

## 3. The Technic and Results of Suprapubic Prostatectomy.

The typical one stage suprapubic prostatectomy is a severe operation with a high mortality (6 to 8 per cent.). To diminish this high mortality the author advocates prostatectomy in two and three stages. This modified prostatectomy diminishes the risk of operation considerably and gives much better functional results. The method of procedure is as follows: the bladder is opened under local anesthesia and the edges sutured to the skin. A tampon is then introduced into the bladder, and removed in a few days. From now on the bladder is irrigated daily until the second operation is performed. The time elapsing between the first and second stages varies between thirteen days and three and one-half months. Under spinal anesthesia the gland is enucleated and two large tampons are inserted, one filling the prostatic cavity and the other the bladder. The suprapubic fistula is then prepared for suture by dissecting the bladder free from the abdominal wall. The bladder is then sutured, leaving a small opening at its lower end for the removal of the packings. If no hemorrhage occurs the tampon is removed the day after the operation, and a drainage tube is then inserted through which the bladder is irrigated daily. At the end of one and one-half weeks the drainage tube is removed and a permanent catheter inserted until the fistula has closed. In very sick patients the author has divided the second stage into two parts, the first consisting of the enucleation of the gland and the second the closure of the fistula some two to three weeks after. The author has had very satisfactory results from this method of prostatectomy, having lost but three patients in a series of 34 cases. The functional results are much better than in the one-stage prostatectomy for the interval between the first and second operations gives the partially degenerated bladder musculature time to regain its tone. The author concludes by saying that where formerly he reserved the two-stage prostatectomy for very severe cases he now practices it as a routine procedure.

## MISCELLANEOUS ABSTRACTS

**Clinical Experiences with the Gonococcus Vaccine, Arthigon.** (Bruck.)

J. H. Schultz (*Deutsche Med. Woch.*, Dec. 14, 1911): Arthigon is a gonococcus vaccine prepared according to the formula of Bruck. The initial dose is generally 0.5 gm, which is increased to 3.0. If the case shows improvement, and febrile reactions follow, the injection is repeated every third or fourth day; if the reactions are mild, every other day until the maximum of 3.0 gm. has been reached. Local reactions are often seen, the patient complaining of a sensation of pressure in the diseased organ. The vaccines had no effect whatever on cases of acute gonorrhea. The results in chronic gonorrheal epididymitis were treated, seventy being favorably influenced. Most of the cases had a febrile reaction which came on 6 to 24 hours after the injection and disappeared after 36 hours. The general condition was not influenced to any extent. Occasionally a reaction at the site of the injection was noticed.

Twelve cases of funiculitis were treated, 8 with marked improvement, the remainder being uninfluenced. Ten cases of chronic prostatitis received vaccines with distinct benefit in 50 per cent. In a series of 16 cases of gonorrheal rheumatism, 11 were improved, there being not a single instance of ankylosis.

In short, of 93 cases of gonorrheal epididymitis, funiculitis, prostatitis and rheumatism treated with Arthigon, 80 per cent. showed marked improvement, and no ill effects were ever observed. The favorable cases showed a febrile reaction, the unfavorable did not.

**Recent Views Concerning the Treatment of Prostatic Hypertrophy.**

Kiellenthner (*Beiträge zur Klin. Chir.*, Dec., 1911): The author first calls attention to the importance of determining the renal activity prior to the operation. Where cystoscopy and ureteral catheterization cannot be carried out, a careful microscopical and chemical analysis should be made, the urea excretion determined, indigo carmine injected, and if necessary a cryoscopic examination made. It is important if possible to make a differential diagnosis between benign and malignant growths of the gland; for in order to be radical the carcinomata must be attacked by the perineal route. The suprapubic operation is not suitable for benign "hypertrophy." Spinal anesthesia is recommended, and the bladder should not be irrigated during the first few days after the operation in order to avoid starting a hemorrhage. A smaller drainage should be inserted on the 5th day and removed on the 12th day, after which a permanent catheter is to be inserted. To avoid bronchitis the patient should sit up in bed on the 3rd or 4th day after the operation. For post-operative hemor-

rhage, calcium chlorate in 3 to 4 gm. doses has been used with success.

Where potency existed before operation it was present in all but one case after the operation.

As for the indications for operation, the author mentions the following: infected cases where the residual urine is over 200 to 300 c. cm.; where infection of the kidneys is imminent; where catheterization is made difficult by pain or hemorrhage, or where calculi exist.

The author has considered the operation indicated only in 16 cases out of a large series. Of these, one patient with an early carcinoma succumbed. None of the cases developed fistulae or incontinence and all lost their residual urine.

#### Traumatic Rupture of the Kidney.

F. Michelsson (*Archiv für Klin. Chirurgie*, Nov., 1911): The author in his report of 30 cases of subcutaneous rupture of the kidney, makes a strong plea for the conservative treatment of this condition. In practically all of the cases there was direct trauma. Only those cases were reported in which hematuria appeared to confirm the diagnosis, although the author especially calls attention to the fact that rupture of the kidney may occur without hematuria. In this series the hematuria lasted from 1 to 18 days; in three of the cases the hematuria did not appear until 2 to 8 days after the injury. The late appearance of the bleeding is probably due to an obstructing thrombus which is later washed away. Hematuria is no guide as to the severity of the lesion for the severe cases often have only slight temporary hematuria, with extensive perirenal extravasation.

As regards the therapy, only the severe cases should be operated upon, all others should be treated expectantly. The patients were kept in bed and a tight rubber compression bandage applied, extending from the ensiform down over the iliac crests. Anuria which occasionally appears is transient, disappearing in 24 hours and is due to an indirect reno-renal reflex. The author advises strongly against cystoscopy and ureteral catheterization for diagnostic purposes, for the danger of infecting a ruptured kidney is very great. When infection of the kidney has taken place nephrotomy should be done if the patient is in good condition; otherwise the kidney should be removed. Of 30 cases treated conservatively, three died, a mortality of 10 per cent. which compares favorably with the mortality of 18 per cent. after operation.

#### Origin and Organization of Infarcts of the Testicle.

M. J. Michael (*Frankfurt Zeit. f. Pathol.*, Vol. IX, No. 2, p. 303): The author gives a detailed account of the history and pathological findings in a case of total infarction of the testicle, and expresses the view that in many cases of fibrosis of this organ, torsion

of the spermatic cord followed by untwisting must have taken place, resulting in necrosis of the parenchyma and subsequent replacement by connective tissue.

A few hours after a fall, the patient was suddenly seized with intense pains in the right testicle. Swelling of the organ followed and lasted a week after which the patient was able to leave his bed, although all objective signs of testicular involvement did not wholly disappear for almost three months. When examined some seven months after the acute illness, the right testicle was found reduced to one-half the normal size and the epididymis was nodular. A presumptive diagnosis of tuberculosis gave the indication for operation, and the organ, after removal, showing evidences of total necrosis of the parenchyma with a productive and organizing inflammatory process and fibrosis of the organ.

The conclusions derived from the author's study may be summed up as follows:

1. Infarction of the testis is almost always due to torsion of the spermatic cord. In the absence of other etiological factors, torsion may be the cause even though the testicle shows no evidence of displacement, since an unwinding may have taken place.

2. Although the reason for the twist of the cord is not completely understood, we know that a venous compression always results, and usually an occlusion of some arteries is also produced. A total hemorrhagic infarction of the testis is brought about with most extensive bloody extravasation under the tunica albuginea, in the rete testis and usually also in the epididymis.

3. Regeneration goes on with the production of granulation tissue and with a fibrotic obliterating lesion of the spermatic vessels.

4. Vascularization takes place in the thrombi with canalization and the formation of veritable well-developed arteries.

5. A total conversion of the testicle and epididymis into connective tissue must always arouse the suspicion of previous infarction (fibrosis testis ex infarctu).

#### Formation of a New Bladder.

Heitz-Boyer and Hovelacque (*Société de Chir. de Paris*, Dec. 6, 1911): In a case of exstrophy of the bladder the authors converted the inferior part of the rectum into a new bladder by isolating it from its upper part.

#### The Umbilical Cord in Syphilis.

M. Dominici (*Virchow's Archiv*, Vol. 206, No. 3, pp. 392-406): In a review of the literature and from the study of the histology of the cord in syphilitic fetus, Dominici concludes as follows:

The umbilical cord is usually very much thickened in the congenital syphilitics, being often double the normal size.

The lesions are most marked in the placental end of the cord, an observation which is of importance in favoring the theory of placental transmission of the disease.

The gumma is not the only type of lesion encountered, for the author was able to find spirochete in areas showing ordinary inflammatory lesions. In one case gummatous nodules were seen in an artery.

Derangements of the normal type of growth of the cord are almost the rule, there being muscular hypertrophy, as well as sclerosis and inflammation.

The elastic elements suffer no marked alterations.

The treponema can almost always be demonstrated in the cord.

#### Epithelial Giant Cells in the Kidney.

W. Wittich (*Virchow's Archiv*, Vol. 206, No 3, pp. 341-377). Wittich arrives at the following conclusions in his study of giant-cell formation in the kidney:—

1. The formation of epithelial giant cells in the renal tubules is a much more common occurrence than has been supposed.
2. These cells are usually found in parenchymatous degeneration and moderately advanced sclerosis of the kidney.
3. Certain mechanical factors are responsible for the formation of these cells:—namely, changes in tissue tension, pressure and formative irritants.
4. In all probability, they represent an incomplete stage of regeneration of epithelial cells.

#### Concerning the Therapy of Tumors of the Bladder.

L. Casper (*Medizin Klinik*, Dec. 17, 1911). As the result of large experience with vesical growths (192 cases), Casper comes to the following conclusions: All apparently benign tumors of the bladder should be operated upon, for a tumor may look benign and still be malignant; or, benign growths may become malignant. As to the method of operation the consensus of opinion seems to be in favor of the endo-vesical route, for recurrences after *sectio alta* are very frequent and often assume the type of a general vesical papillomatosis. Of 192 bladder tumors, 155 were benign and 32 malignant. The method of procedure in these cases is as follows: A small portion is first removed for histological examination. A negative report for malignancy should not be taken as absolute. The size of the growth should be no contraindication against its removal endo-vesically. As regards the controversy over the advantages of the cautery snare over the cold snare, the author, after an experience with both, now uses the cold snare almost exclusively, claiming that it is just as certain and much easier to manipulate than the cautery snare. But three severe cases of hemorrhages (none being fatal) were en-

countered in the course of 155 endo-vesical operations. To prevent recurrences, the base of the tumor should be cauterized with the flat cautery regardless of whether the hot or cold snare has been used. Two varieties of hemorrhage may be encountered, a primary bleeding due to cutting the vessels of the tumor, and secondary or late bleeding occurring 14 to 21 days after the operation and due to sloughing of the eschar.

#### Pituitrin as a Bladder Tonic.

R. Hofstatter (*Wiener Klin. Woch.*, December 7, 1911): Stimulated by reports of the excellent tonic effect of pituitrin on the uterus, the author tried the method on numerous gynecological cases that suffered with retention of urine after operation, and obtained excellent results. The method is far superior to any hitherto advanced, including glycerine injections and glycerine bougies, for it does not necessitate any urethral or vesical instrumentation and thus does away with the danger of cystitis. One cubic centimeter of pituitrin is injected subcutaneously. In more than 75 per cent. of the cases spontaneous urination takes place after a few minutes; in a few cases after a lapse of 30 to 40 minutes. A second retention after one injection never occurred. No unpleasant after-effects were noted. Oral administration is not efficacious. The drug has no effect when marked lesions of the bladder exist. As regards the action of pituitrin, polyuria is produced soon after the injection. According to Frankl-Hochwart, pituitrin stimulates the musculature of the bladder and also increases the irritability of the motor nerves to the bladder.

#### An Unusual Case of Masturbation.

Dr. R. Bailey, of Coleman, reports (*Texas State Journ. of Med.*) the following interesting and unusual case, which came to him recently:

On December 15, A. Z., Mexican, age 19, walked in his office, complaining of abdominal pain and giving a history of having had an urgent desire to defecate the previous night and that he had, on hurriedly squatting down, snagged himself, and broke off a piece of stick in the rectum.

On examination, the anus showed a slight abrasion and the finger revealed a hard object in the rectum, which could not be withdrawn through a speculum owing to the pain. Abdominal examination then showed the other end of the stick just below the gall bladder.

An anesthetic was administered, and with the finger in the rectum behind the object, it was easily lined up with the anus and delivered. The "piece of stick" proved to be a portion of a buggy spoke, with a rounded end, ten inches long, and three inches in circumference.

Evidently in his paroxysm the boy had risked too much, the

sphincter ani catching the spoke and forcing it into the rectum out of his reach.

**Excision of Parietal Portion of the Tunica Vaginalis for Relief of Painful Testicle following Gonorrheal Inflammation.**

G. T. Tyler, *J. A. M. A.*, Sept. 9, 1911. Tyler reports the case of a man, 25 years of age, who had gonorrhea with swelling of the left testicle six months previously. When examined the patient had only a slight mucoid discharge, noticeable in the morning, but complained of a painful left testicle. The urine showed shreds in the third glass. There was no stricture. The prostate was normal to palpation; the right testicle also was normal. The left testicle was not swollen but very painful and tender. Any effort to determine the limits of the epididymis and first portion of the vas caused such intense pain that this examination was futile.

When exposed at operation the epididymis and vas were found normal. The parietal layer of the tunica vaginalis was found firmly adherent to the visceral layer over the testicle. The parietal layer was dissected off and excised.

After the operation the testicle became enlarged, the swelling soon subsiding. From then on the symptoms entirely disappeared and the patient returned to work two weeks after the operation. Six months later the testicle was apparently normal on palpation; there was neither tenderness nor atrophy.

## SOCIETY PROCEEDINGS

### THE NEW YORK ACADEMY OF MEDICINE

#### SECTION ON GENITO-URINARY SURGERY

Clinical Meeting, February 2, 1912

#### CASE OF HYPERNEPHROMA

*Dr. E. L. Keyes, Jr.*, presented a specimen of a large hypernephroma successfully removed. The patient, a man of 34 years, was well up to six months ago, when he first noticed a left-sided varicocele. A week before operation, he had a very severe renal hemorrhage. There were no other subjective symptoms, although the tumor was of sufficient size to produce a large tumor mass in the loin. The specimen showed involvement of the renal vein by tumor tissue.

#### CASE SHOWING FOUR URETERS

*Dr. H. D. Furniss*, presented the case of a woman 34 years of age, who gave symptoms of a right hydronephrosis at each menstrual period. Cystoscopy revealed the presence of four ureters; two emptying into the bladder in their normal position, and two just about  $\frac{3}{8}$  inch proximal to these, and near the outer border of the trigonum. A catheter inserted into the right normally situated ureter was passed with some

difficulty. Distention of the renal pelvis caused the pain of which she complained. All four ureters were catheterized, and the urines obtained were normal. Radiographs with 50 per cent. argyrol showed that the two left ureters had separate pelves. The two right ureters were not radiographed with argyrol.

## DISCUSSION

Dr. Dawbarn cited a case encountered in the post-mortem room in which 15 or 16 ureters were found coming from one ureter. Many of the ureters joined before entering the bladder, so that there were less than half this number of ureteral orifices.

Dr. Furniss also presented a case of hairpin in the bladder with renal infection. The patient, a young girl of 22 gave a distinct history of masturbation, having at one time attempted self-catheterization with a lead pencil. Five weeks ago, she allowed a friend who wanted to learn nursing, to attempt catheterization. The hairpin that had been used to stiffen the soft rubber catheter, was allowed to slip into the bladder. About one week ago she had pain and tenderness in the left renal region, with fever and chills. The pin was removed through a Kelly Cystoscope, but the pain and fever have persisted since, the urine containing large amounts of pus.

Dr. Dawbarn showed a photograph of a patient having a double penis with four testicles.

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BOOK REVIEWS

HANDBUCH DER CYSTOSKOPIE, von Dr. Leopold Casper, Universitätsprofessor in Berlin. *Dritte Umgearbeitete und Vermehrte Auflage*, Octavo; 486 Seiten; mit 171 Abbildungen und 22 Tafeln in Dreifarbendruck. Leipzig: George Thieme. 1911.

This third edition of Casper's book on Cystoscopy merits special attention since it evidences considerable painstaking work. It is an extensive revision of the second edition, the latter having been enlarged from 384 to 486 pages. Believing that the technical side of the improved optical systems now in use both abroad and in this country, could be best treated by a specialist, the author has incorporated a special chapter written by M. von Rohr of Jena on the theory of image formation through the cystoscope. Although this section of the work is valuable for the cystoscopist who is well equipped with a knowledge of geometrical optics it can hardly be regarded as sufficiently clear to be easily understood by the average student of urology.

The section dealing with the functional renal tests has been somewhat revised, but unfortunately it deals too sparingly of the indigo-carmin method and makes no mention of the phenolsulphonephthalein procedure.

A valuable addition to the work is an excellent Atlas in which



67 endovesical views are reproduced, the original photographs and the colored revisions being set side by side.

Dr. Casper's book in its present form still has the distinction of being one of the best and most attractive works in cystoscopy, and is deserving of a place in the library of every genito-urinary surgeon.

UROLOGISCHER JAHRESBERICHT. (Einschliesslich der Erkrankungen des männlichen Genitalapparates) Redigiert von Prof. Dr. A. Kollmann (Leipzig) und Dr. S. Jacoby (Berlin). *Literatur 1910*. Octavo; 485 pages. Leipzig: Dr. Werner Klinkhardt 1911.

This new work appears as a supplement to that well-known international urological journal the *Folia Urologica*. The following chapters are contained in the volume:

(1) Physiology by Dr. R. du Bois Reymond. (2) Anatomy by Drs. Geissler und B. Glaserfeld. (3) The Pathology and Therapy of the Genitourinary tract, treated under the following sub-divisions: (a) Surgical diseases of the Kidney and Ureter by Drs. Karewski and E. Marcuse, (b) Non-surgical diseases of the Kidney and Ureter by Dr. P. F. Richter, (c) Diseases of the Prostate and the Bladder by Dr. O. Simon, (d) Gonorrhea by Dr. V. Nothafft, (e) Surgical Diseases of the Pelvis, Urethra, Vas and Testicle by Dr. H. Wossidlo, (f) Nervous Derangements of the Uro-genital Tract by Dr. A. Moll, (g) Diseases of the Urinary Tract in the Female by R. Knorr. (4) Chemistry of the Urine by Dr. A. Lewin. (5) Bacteriology by Dr. E. Saul. (6) Genito-urinary Diseases of Domestic Animals by Dr. R. Eberlein.

Although most of the abstracts are short, the concise manner in which the subject matter is presented makes even the shortest of them valuable. The international literature is exceedingly well represented; and it is a matter for congratulation that the American urological papers have received such extensive recognition. In the past the work of both English and American writers has been deplorably neglected by most of the German publications.

We heartily recommend this new venture of the editors of the *Folia Urologica* to the urologist, and pronounce the work a valuable acquisition as a convenient reference book of the year's most important literature.

# THE AMERICAN JOURNAL OF UROLOGY

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## HEMATURIA OF NEPHRITIS AND RENAL PAPILLITIS FROM A SURGICAL STANDPOINT: A STUDY OF 73 CASES.

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**T**HIS paper is based upon the study of 73 cases of renal hematuria,—unilateral with a few exceptions,—which have been operated upon; and whose cause from the symptoms, urinary findings and examination of the kidney or portions thereof was neither tuberculosis, stone neoplasm, hydronephrosis nor rarer renal conditions.

While the literature on this subject is voluminous there still exist very considerable differences of opinion as to classification, diagnosis, prognosis and treatment. And while there has been no attempt to include in this paper all the cases in the literature enough cases have been studied to allow very definite conclusions to be drawn; conclusions which differ in some respects from those of various authoritative articles on this subject.

The largest number of reported cases that I have been able to find (36) are in the paper by Pousson published in 1907 (1). These are included in my paper, although where practicable I have examined the original report.

### CLASSIFICATION

Fenwick in 1898 (2) first called attention to renal hemorrhage arising from varicose veins of the papilla.

Rovsing in 1901 (3) suggested a more proper classification of these cases. "He showed that some of his cases of nephritis with hematuria presented a urine that was infected; that they were instances of nephritis of infectious origin rather than a nephritis plus an infection. Not only this, but that an area of nephritis of this type could be limited to one kidney or part of one kidney." Chute (4) and others corroborated Rovsing's work.

Chute in 1906 proposed the following tentative classification: 1, "Hematuria in cases of chronic nephritis of the usual toxic or degenerative type, showing the urine and other signs of an interstitial parenchymatous or diffuse nephritis. 2, Hematurias arising in the nephritides that are still infectious at the time of hemorrhage. 3, it seems likely that some of the hematurias have been in cases of chronic nephritis that *were* of infectious origin, but had become non-infectious at the time of hemorrhage."

I have attempted to classify these 73 cases of renal hemorrhage from three points of view:

1. Considering the microscopical examination of the excised kidney or portions thereof.
2. Considering the examination of the urine with other symptoms of nephritis, toxic or infectious.
3. Considering the source of hemorrhage.

#### MICROSCOPICAL EXAMINATION OF THE KIDNEY

The results of the microscopical examination give a more accurate idea of the kidney condition than the urinalysis and symptoms. In 26 of the 73 cases nephrectomy was done. In 22 of the 26 nephrectomized kidneys all forms of nephritis and pyelitis were diagnosed. In 3 of the 26 the kidney was "practically normal" and in 1 the examination was not made. In 24 of the 73 cases a diagnosis of nephritis was made from examination of portions of the kidney excised at time of operation. In 19 of the 73 cases the diagnosis of the kidney condition was not made, 2 of these 19, however, dying post-operatively from uremia. In but 4 cases was there a suggestion from the examination that the kidney condition was infectious in origin: these were pyelo-nephritis, infarct-suppurative, pyelo-nephritis; anemic infarct; pyelo-nephritis.

In a number of these cases, Cabot (5), Haynes (6), Kiraffa-Korbitt (7), Fenwick (2) the careful pathological examination demonstrated that the bleeding came from the renal pelvis, although the diagnosis in Kiraffa-Korbitt's case (metaplasia of the renal pelvis) differed from that of the others.

Therefore, from a pathological examination in 46 of the 73 cases (and probably many more) there was a nephritis or pyelitis (3 cases) present: and we have in the 73 cases four different types; 1, toxic nephritis; 2, infectious nephritis; 3, varicose veins of the papilla; 4, metaplasia of the pelvis. The relative frequency of these different types and their coexistence will be discussed under "source of hemorrhage."

EXAMINATION OF THE URINE TOGETHER WITH OTHER SYMPTOMS  
OF NEPHRITIS

Casts and albumen before operation. (Blood casts excepted and albumen only included when it was in too large quantity to be caused by the blood present, or when found between bleedings.)

Present	Absent	Not given
12	53	8

The examination of the patients that died of uremia was (before operation) as follows:

- 1 polyuria and albuminuria (no casts mentioned).
- 1 albuminuria (no casts mentioned).
- 1 pollikuria and edema of malleolus (no casts mentioned).
- 1 cast and white blood cells.

1 few white blood cells (no casts mentioned). This last case (of Rovsing) where there were no casts, albumen or symptoms of failing kidney function, the patient died *post-operatively* of uremia, which may have been due to the operation rather than to the condition of the kidneys.

In the 4 other cases that died of uremia the death occurred some time after operation, and in all of these there were present one or more symptoms of nephritis.

In addition to the above there was one case of general edema, and two cases where casts appeared after operation.

We therefore have 19 cases where from the urinalysis and physical signs a nephritis would have been diagnosed and 50 or more cases where the examination of the excised kidney or portions thereof showed a nephritis—a wide disproportion. This disproportion may be partially explained by the probability that these 19 cases represent the severer grades of nephritis, and the milder forms presented neither casts, albumen nor general symptoms.

Pyuria: Rovsing's 8 cases of infectious nephritis where an organism was found in the urine from the affected kidney gave the following report as regards pus:

- 1. "Many while blood cells."
- 2. "Few white blood cells."
- 3. "Degenerated leucocytes."
- 4. "Many pus cells."
- 5. "Many pus cells."
- 6. "Many pus cells."

7. "Many pus cells."

8. "Pus cells."

Probably all of these cases with the exception of the second would have been considered to have pus in the urine. And I believe this is the rule with all cases of infectious nephritis.

In the 73 cases it has been impossible to determine from the reports what number of cases had pus in the urine. Some reports say few W. B. C.; some say many W. B. C.; some say pus. It is probable that only a small percentage of these cases had pus in the urine and that but a small percentage were cases of infectious nephritis.

#### THE SOURCE OF HEMORRHAGE

The question of the source of bleeding in these cases is of much importance not only theoretically but practically in its bearing upon diagnosis, prognosis and treatment. The bleeding may be caused either by the rupture of a vessel or vessels within the kidney substance, the blood passing into the uriniferous tubules and so into the pelvis; or it may be caused by a rupture of the vessels of a papilla and pass directly into the pelvis. If the former occurs it ought to be easily demonstrated when the excised kidney is examined, showing extravasation in the kidney substance, blood in the tubules, glomerulus, etc. If the source of bleeding were in the papilla its demonstration would be much more difficult as this is an external surface and there is nothing to confine the blood.

In but 10 cases was the source of bleeding definitely determined: in 3 cases there was blood in the tubules of the excised kidney; in 7 it was demonstrated as coming from the pelvis. That is in 70% of the cases in which the source of bleeding was determined the bleeding was from the pelvis. But this 70% represents only 7 cases. I believe that the bleeding came from the papilla in a large majority of all the cases. It is suggestive that the only other condition in which we find as marked a hematuria are neoplasms of the kidney and *tuberculous ulcerations of the kidney papilla*.

We now come to the question, do these conditions — toxic nephritis, infectious nephritis and varicose veins of the papilla — exist as separate entities or are they related? And if they are related what is the relationship?

We know in a number of cases where the hemorrhage was diagnosed as coming from the pelvis that there was also present a pathological condition of the kidney. Ewing's report in

Haynes's case says: "Chronic productive nephritis with thickening of the stroma in many patches and general arteritis. . . . The whole organ is in a state of chronic venous congestion. . . . Chronic inflammation of pelvic mucosa . . . many new but poorly formed vessels." In one of Fenwick's cases the kidney was in a state of sub-acute nephritis, "possibly the result of the first operation." In Kiraffa-Korbitt's case of metaplasia of the pelvis there was present a nephritis. On the other hand in Cabot's case while there is no mention of a microscopical examination of the kidney, macroscopically "it appeared somewhat pale but otherwise normal."

In 52 of the 73 cases (probably more) or 71% there was present one or another form of nephritis. And from the above it is probable that in a large number of cases there existed with the nephritis a varicose condition of a papilla. With these two existing in many cases together or associated an explanation of the pathological condition is as follows: In the examination of Cabot's case the following is noted, "It is interesting to find what an abundant vascular plexus there is at the apex of the normal papilla, and by what thin tissue the vessels are separated from the external surface. The size of the normal vessels, however, is very much less than in this case. . . . It is only to be wondered at that hemorrhage is not much more frequent from this source, and it possibly may be, and may account for blood found in the urine in some cases of congestion of the kidney." Given this abundant vascular plexus of a normal papilla with its thin covering; and given a slight change in the kidney circulation, a slight stasis, as a nephritis might cause; is it not plausible that as first suggested to me by Dr. Keyes a nephritis is the primary condition, and the varicosities of the papilla are secondary to the change in circulation occasioned by the nephritis?

*And even if the varicosities of the papilla and the nephritides bear no relation to each other, the fact that both are present in many cases indicates that we must consider both conditions in diagnosis, prognosis and treatment.*

#### PRESUMPTIVE DIAGNOSIS BEFORE OPERATION

In these 73 cases the presumptive pre-operative diagnosis was:

Papilloma kidney pelvis, 1 case.

Hemorrhagic nephritis, 1 case.

Hemaphilia or essential hematuria, 2 cases.

Tuberculosis kid., 3 cases.

Neoplasm, 3 cases.

Calculus, 5 cases.

Neoplasm or calculus, 2 cases.

Neoplasm or chronic nephritis, 3 cases.

Neoplasm or tuberculosis, 2 cases.

Nephritis or calculus, 1 case.

Neoplasm, tuberculosis or calculus, 1 case.

Tuberculosis, uremia, paroxysmal hemaglobinuria, neurosis (simulation) or calculus, 1 case.

Questionable, 17 cases.

Not given, 31 cases.

We see that calculus is mentioned 10 times, tuberculosis 7 times and neoplasm 11 times.

In discussing the symptoms and differential diagnosis it is not my intention to consider either tuberculosis or calculus. The diagnosis of both of these should not be difficult and should be made in a large percentage of cases. On the other hand the differential diagnosis between nephritic hematurias<sup>1</sup> and neoplasm is of much importance and often extremely difficult; and will be considered at some length. And of neoplasms the most important are the hypernephromata; first, because of their relative frequency (70 to 80% of all neoplasms); and second, because of certain peculiarities of symptoms which make the differential diagnosis at times impossible.

Two of the most reliable sets of statistics of the frequency of renal neoplasms, according to the modern revision of these tumors, are probably those from Israel's clinic and those of Garceau (8). Bloch from Israel's clinic (9) gives the classification:

In 126 malignant tumors,

86 hypernephroma (72% of those identified).

32 other tumors.

8 not identified microscopically.

Of these 32 tumors,

6 papilloma of kidney pelvis or kidney.

6 sarcoma.

4 carcinoma.

<sup>1</sup> When nephritic hematurias or the hematuria of chronic nephritis is mentioned alone, all of the conditions—hematuria of toxic nephritis, hematuria of infectious nephritis, hematuria of papillitis or varicose veins of the papilla—are meant.

6 papillary cystoma.

1 teratoma.

5 mixed tumors of hypernephroma with sarcoma, carcinoma and other tumors.

Garceau's statistics show even a larger per cent. of hypernephroma:

In 42 cases,

Hypernephroma 78%.

Carcinoma 7%.

Sarcoma 4%.

Papillary adenomata 9%.

The differential diagnosis of hypernephroma will therefore be especially considered.

#### ETIOLOGY

*Sex:* Of the 73 cases of hemorrhagic nephritis there were: Male 42 (57%), Female 30 (43%). Not given 1.

Neoplasms, Bloch (Israel's clinic) 126 cases,  $\frac{4}{5}$  Male,  $\frac{1}{5}$  Female.

Kustner (cited by Bloch)  $\frac{3}{5}$  Male,  $\frac{2}{5}$  Female.

Hemorrhagic nephritis follows the variations in sex that are seen in neoplasm. That is a predominance of male cases. According to Israel this is due (in neoplasm) to the fact that both bleeding and tumor are recognized less readily (by the patient) in women than in men. The explanation for the larger percentage of women in hemorrhagic nephritis than in neoplasm is perhaps that in the former hematuria is a constant symptom while in neoplasm it is not, and that hematuria is more often recognized by the patient than tumor.

Hemorrhagic nephritis.

Hypernephroma (Garceau).

73 cases		176 cases	
Age	No. Cases		No. Cases
1-10 yrs.....	0		4
10-20 yrs.....	8		0
21-30 yrs.....	13		10
31-40 yrs.....	24		17
41-50 yrs.....	13		48
51-60 yrs.....	10		61
61-70 yrs.....	1		24
71-80 yrs.....	0		3
Age not stated .....	4		9
Youngest.....	11		
Oldest .....	65 (Haynes's case)		



"Carcinoma, sarcoma and malignant adenoma are most common between the ages of 40 and 70." (Garceau).

The age may help somewhat in the differential between hemorrhagic nephritis and neoplasms. The former are most common between the ages of 20 and 50, while the latter (hypernephroma, carcinoma, sarcoma and malignant adenoma) occur most frequently between the ages of 40 and 70.

Side Involved: For a matter of record the side involved in the 73 cases was:

Right	Left	Bilateral (?)	Not given
28	29	4	12

#### SYMPTOMS

*Hemorrhage — Tumor — Functional capacity — Pain.* The fact that in but 9 cases of the 73 (14%) was the presumptive diagnosis of hemorrhagic nephritis made, indicates how important is a more complete understanding of the symptoms of this disease.

To the three cardinal and classical symptoms of neoplasm and hemorrhagic nephritis, I have added a fourth, functional capacity — if it can be called a symptom — which much neglected procedure holds a place of equal importance with hemorrhage and tumor in the differential diagnosis; and is far more important than pain.

Hemorrhage and tumor will be considered together.

#### *Hemorrhage and Tumor.*

##### *Duration of Bleeding of Hemorrhagic Nephritis.*

Up to 3 mo. ....	19	10 to 15 yrs. ....	1
3 to 6 mo. ....	9	15 to 20 yrs. ....	1
6 mo. to 1 yr. ....	3	20 to 30 yrs. ....	1
1 to 2 yrs. ....	11	Not given ....	7
2 to 5 yrs. ....	15	Shortest, some days.	
5 to 10 yrs. ....	5	Longest, 30 yrs. (Cabot's case)	

##### *Tumor, Hemorrhagic Nephritis.*

Kidney neither enlarged nor palpable. ....	14 cases.
Kidney palpable (enlarged?) .....	4 cases.
Kidney palpable and enlarged .....	8 cases.
Normal side enlarged .....	1 case.
Not given .....	46 cases.

In one of the 8 cases in which the kidney was enlarged the tumor was caused by a peri-renal hematoma. In the remaining

7 cases the duration of bleeding was 2 mo.; 2 yrs.; 2 yrs.; 3 yrs.; 3 yrs.; 5 yrs.; and in 1 case not given.

These statistics are interesting in that in 46 cases no mention is made of kidney enlargement — a significant fact in itself; and that there is a record of but 8 cases of enlargement of the diseased kidney. I doubt if this record be entirely trustworthy. There are possibly two reasons for this: first, the histories may have been incomplete; second as cystoscopy and ureteral catheterism have become perfected we have become more careless of the physical examination, depending too much upon our cystoscopic findings.

We may however deduce the following important inference that *in a large proportion of cases there was no enlargement of the diseased kidney.*

*Neoplasm, Hemorrhage and Tumor* (Garceau) Hypernephroma. In 176 cases there were 89 cases (50%) in which hematuria was a prominent symptom at some time during the disease. There were 61 cases or 34.6% in which it was distinctly stated that there had never been hematuria up to the time the report was written — in some of the negative cases — the disease was known to have existed for a considerable length of time — from 2 to 15 years.

"It is difficult to give figures as to the comparative frequency of tumor and hematuria as a first symptom because the reports of cases are incomplete in this respect. In 10 cases the hematuria antedated the appearance of the tumor; in 14 cases the tumor antedated the hematuria; and in 11 cases the tumor and the hematuria appeared simultaneously. In those cases in which the hematuria antedated the tumor the duration of antedation was 6 weeks; 2 mo.; 1 yr.; 16 mo.; 3 yrs.; 3 yrs.; 4½ yrs.; 5 yrs.; 8 yrs.; 1 not given.

*Carcinoma, Sarcoma, Malignant Adenoma.*

"Occasionally . . . the disease runs its whole course without hematuria. . . . Least in importance of the three cardinal symptoms is tumor. The extreme malignancy of the disease does not always permit of a large growth."

*Neoplasms. Hemorrhage and tumor.* (Bloch, Israel's Clinic).

In  $\frac{1}{3}$  of all cases (namely 104 times out of 126 cases) the first prominent symptom was hematuria. Only in  $\frac{1}{3}$  of all cases (25 times) the patient came with the statement that he himself

or the physician had been able to feel the tumor. But their results (Israel's) were, in the 126 cases (more than  $\frac{1}{2}$  of all cases) the tumor was diagnosed by palpation 109 times.

88 times a more or less large tumor directly felt.

13 times an enlarged kidney with irregular outgrowths palpated.

8 times simply an enlarged kidney without irregularities.

Only in 5 cases was the normal kidney felt.

It is probable that only Israel could palpate a tumor in 80% of all cases. It would seem, however, that with care a tumor might be palpated in a majority of cases — say 60 to 70%. And this is one of the cardinal points in the differentiation between hypernephroma and hemorrhagic nephritis.

In hemorrhagic nephritis hemorrhage of course occurs in all cases. In neoplasm (all) it occurs, according to Bloch, as the first prominent symptom in 80% of cases. In hypernephroma in 50% of all cases hemorrhage occurred as a prominent symptom some time during the disease (Garceau). In one of Garceau's cases the hemorrhage antedated the appearance of the tumor 8 years (this seems almost incredible if the patient were a good subject for palpation).

*Summary* (Tumor and Hematuria). It would appear that tumor is present in a large majority of cases of neoplasm; that it is absent in a much larger majority of cases of hemorrhage nephritis.

If the bleeding extends into years carcinoma, sarcoma and malignant adenoma, *but not hypernephroma* may be excluded.

There exists a comparatively low percentage of cases of hypernephroma where the hematuria has existed for some years and in which no tumor is present.

In a certain low percentage of cases of neoplasm, hematuria is absent, while it is a constant symptom of Hemorrhagic Nephritis.

#### SYMPTOMS — FUNCTIONAL CAPACITY

In reviewing the question of functional capacity in these cases of Hemorrhagic Nephritis we are confronted by a number of conditions:

But 19 cases of the 73 showed from the urinalysis or symptoms that a nephritis was present. Of these 19 cases 4 died post-operatively (3 after nephrectomy and 1 after nephrotomy) of uremia.

None of the remaining 54 cases died post-operatively of renal insufficiency (with the exception of Rovsing's post-operative case) notwithstanding that in a number of cases nephrectomy was the operation. This would indicate that in a majority of cases the nephritis present was not of a severe type.

Even if a considerable degree of nephritis be present our present tests of functional capacity often indicate a normal function of the diseased kidney. For example in one of Casper's cases (10) the urinalysis of the right and left urines was:

Right (normal)	Left (hematuria)
$\Delta - 1.70$	$\Delta - 1.59$

Phloridzin positive in 18 min.	same
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In this case the diagnosis was "chronic interstitial nephritis with marked alterations of the pyramids."

I have seen several cases of apparently uni-lateral nephritis where the U. V.<sup>2</sup> of the diseased side was the same as the U. V. of the normal one.

As partially explaining this I would suggest the possibility that our present methods of determining the functional capacity in surgical diseases of the kidneys do not always apply to and accurately indicate the true function in medical diseases, as for example in the toxic nephritides.<sup>3</sup>

Of the 73 cases the functional capacity<sup>4</sup> was taken in eleven cases as follows:

1. Both kidneys equal function by phloridzin.
2. Diseased kidney better function than well kidney (test not given)
3. Both kidneys less function than normal. Function of hemorrhagic kidney less than its fellow (test not given).
4. Same as above.
5. Function of diseased kidney slightly less by U. V. and sp. gr. V.<sup>5</sup> (in proportion of 7 to 12).
6. Function diseased kidney slightly less by  $\Delta$  (6 to 5).

<sup>2</sup> By U. V. is meant the percentage Urea x Volume of Urine.

<sup>3</sup> This was written before phenolsulphonephthalein was used for the estimation of the kidney function.

<sup>4</sup> Where two or more tests are made the result of the functional test which shows the kidney capacity to the best advantage should be taken. With normal kidneys the variations of instrumentation and methods give considerable variations in the functional capacity, and when different surgeon's results are compared these variations assume greater latitudes; and are perhaps as much as 10 or 20 per cent.

<sup>5</sup> Sp. Gr. V. is the specific gravity x volume of urine.

7. Function both kidneys equal by phloridzin and  $\Delta$ .
8. Function diseased kidney better than normal one by U. V. (7 to 9) and slightly less by  $\Delta$ V. (5 to 6).
9. Function both kidneys equal by sp. gr. V. and by  $\Delta$ V.
10. Function both kidneys equal by U. V.
11. Function diseased kidney more by sp. gr. V. (1 to 3) and slightly less by phloridzin (11 to 15).

There were therefore but 2 cases where the function of the diseased kidney was decidedly less than that of the more normal and in these cases the disease was bi-lateral. In the other 9 cases the function of the diseased kidney was slightly less, or equal to, or more than that of the normal kidney. Different tests of function give slightly different results.

*Functional Capacity in Neoplasm.* Bloch (loc. cit.) says: "The functional examination for the diagnosis and indication for operation in kidney tumors is, according to our experience, of less value than in other kidney conditions. Because while in some cases of small tumors there is a difference in the sugar and blue (indigo-carmin) elimination, so much so that the normal side may be determined, in other cases of decidedly large tumors a marked difference is not present. There are two reasons for this; first, kidney tumors often cause a toxic nephritis and so a functional decrease of the opposite kidney, which returns to normal after the removal of the tumor; second, sometimes with very large tumors an appreciable portion of the kidney parenchyma remains which promptly eliminates phloridzin and indigo-carmin."

I have collected 13 cases of kidney neoplasms where the functional capacity is given:

1.	Albarran. (11) Neoplasm.	Normal kidney, U. V.	5	These figures represent comparative quantities.
		Diseased " "	1	
2.	" "	Normal kidney, U. V.	23	
		Diseased " U. V.	10	
3.	" Large epithelioma of renal pelvis,	Normal kidney, U. V.	1	
		Diseased " U. V.	1	
4.	" Neoplasm,	Normal kidney, U. V.	8	
		Diseased " U. V.	6	
5.	" "	Normal kidney, U. V.	8	
		Diseased " U. V.	6	
6.	" Cancer,	Normal kidney, $\Delta$	2	
		Diseased " $\Delta$	1	

- |     |                          |                     |   |                                 |
|-----|--------------------------|---------------------|---|---------------------------------|
| 7.  | Albarran                 | Neoplasm,           | Normal kidney, U. V.  | 7                               |
|     |                          | Diseased "          | U. V.   | 2                               |
| 8.  | Keyes (unpublished case) | Hypernephroma,      | Normal kidney better by polyuria (experimental); by indigo-carmin (10 min. to 18 min.); and by U. V. (3 to 1) |                                 |
| 9.  | Cathelin.                | (12) Hypernephroma, | Normal kidney,  | U. % 3                          |
|     |                          | Diseased "          | U. %  | 1                               |
| 10. | "                        | Sarcoma,            | Normal kidney.  | U. % 10                         |
|     |                          | Diseased "          | U. %  | 7                               |
| 11. | Steiner.                 | (13) Carcinoma,     | Normal kidney,  | $\Delta$ % 2                    |
|     |                          | Diseased "          | $\Delta$ %  | 1                               |
| 12. | "                        | Sarcoma,            | Normal kidney,  | $\Delta$ % 3 - Phloridzin, .48% |
|     |                          | Diseased "          | $\Delta$ % 2 -  | " neg                           |
| 13. | Dominico.                | (14) Neoplasm,      | Normal kidney, U. V.  | 18 - 1                          |
|     |                          | Diseased "          | U. V.   | 1 - 1                           |
14. In case of my own, by indigo-carmin the function of the diseased kidney was less than the normal one and at operation about  $\frac{1}{8}$  of a normal kidney was found. Diagnosis, hypernephroma.

Of these 14 cases in 10 there was markedly decreased function of the neoplastic kidney —  $\frac{1}{2}$  or less. In the 4 remaining cases there was but a slightly decreased function of the diseased kidney.

*Summary. Functional Capacity.* It is impossible to base at all accurate deductions upon so few cases. From these cases, however, there seems to be a marked difference between the functional capacity of the neoplastic kidney and the kidney of hemorrhagic nephritis. In the former, and I believe this to be the rule, a decided majority of cases showed marked disturbance in the kidney function; and in hemorrhagic nephritis but a minority of cases showed decreased function. While in some cases of even large hypernephroma the kidney itself remains intact, I believe that these cases are rather the exception than the rule. While agreeing with Bloch in part, that "the functional examination for the diagnosis and indication for operation in kidney tumors . . . is of less value than with other kidney conditions," I believe the functional examination is of very decided value in the differential diagnosis; should always be attempted; and that phenolsulphonephthalein is the best method by which to determine the kidney function.

#### SYMPTOMS — PAIN

##### Pain — Hemorrhagic Nephritis.

Kidney tender — Positive	33 times.
Negative	18 times.
Not given	22 times.

Kidney colic <sup>6</sup> — Positive 4 cases.  
Negative 69 cases.

Pain — Hypernephroma (Garceau).

"Pain is mentioned as having been present at some time during the disease 91 times (in 176 cases); 59 times there was no mention of the symptom; and 26 times it was distinctly stated that there had never been any pain at all."

Pain or kidney tenderness is of some importance in determining which side is involved but is of no value in the differential diagnosis.

*Symptoms — Varicocele.* Under symptoms varicocele should be mentioned, as this, negatively, may be of value in the differential diagnosis. Bloch says, "In one-fourth of all cases (neoplasm) was varicocele present."

*Diagnosis made by.* I have recorded the different methods by which the diagnosis was made. They were:

Cystoscopy alone, . . . . .	positively	16 cases.
Cystoscopy alone, . . . . .	probably	4 cases.
Pain alone, . . . . .	probably	11 cases.
Tumor alone, . . . . .	positively	2 cases.
Tumor alone, . . . . .	probably	1 case.
Ureteral catheterism alone (1 case supra-		
pubically) . . . . .		3 cases.
Urinary separation alone, . . . . .		1 case.
Suprapubic incision alone, . . . . .		1 case.
Functional capacity alone (bleeding not		
present) . . . . .		1 case.
Cystoscopy and pain, . . . . .		18 cases.
Cystoscopy and tumor, . . . . .		1 case.
Cystoscopy and tumor and pain, . . . . .		3 cases.
Tumor and pain, . . . . .		3 cases.
Separation and pain, . . . . .		2 cases.
No diagnosis (both kidneys explored) . . . .		2 cases.
Cystoscopy impossible, (4 because of blood,		
1 youth) . . . . .		5 cases.
Not given, . . . . .		4 cases.

<sup>6</sup> It is taken for granted that if such an important symptom as kidney colic had been present, it would have been mentioned. When not mentioned therefore it is considered as being absent.

From this we see that cystoscopy (ureter catheterism and separation included) was mentioned in 49 cases; pain in 37; tumor in 10 (2 of these 10 cases the kidney was felt but not said if enlarged).

This emphasizes the importance that cystoscopy, pain and negatively tumor, have in the diagnosis. It is interesting that cystoscopy was performed in 49 cases of the 73. Was impossible 5 times, and not performed (no reason given) in 19 cases.

#### TREATMENT

The gravity of this disease and the importance of the recognition of this gravity are vigorously emphasized by the following statistics of the operations performed upon the 73 cases of Hemorrhagic Nephritis and the results of operation.

Nephrotomy, .....	32 times.
Nephrectomy, .....	18 times.
Nephrotomy and nephrectomy, ....	8 times.
Decapsulation, .....	8 times.
Pyelotomy, .....	1 time.
Nephrolysis, .....	2 times.
Papillectomy, .....	2 times.
Papillectomy and nephrectomy, ...	1 time.
Explorative incision to kidney, ....	1 time.
No operation, .....	1 time.

#### Mortality.

Following nephrotomy, 6 deaths, 3 uremia.  
 2 exhaustion.  
 1 hemorrhage.

Following nephrectomy, 5 deaths, 2 uremia.  
 1 operative.  
 1 weakness.  
 1 anemia.

One death, (hemorrhage) no operation.

From these statistics we see that the operation of choice has been nephrotomy, it being performed in 54% of cases. Next comes nephrectomy, in 38% of cases, or 27 cases. The total mortality of the 73 cases was 16%. One of these cases was not operated upon so *the mortality of the operated cases was 15%.*

*Nephrectomy.* The direct operative mortality following nephrectomy was 4% (less than in nephrotomy); total mortality 8%. 3 of these cases died of uremia. Of the 27 cases in which



nephrectomy was performed, 16 times it was done for a reason, the principal one being hemorrhage (8 times the preliminary nephrotomy had to be followed by a nephrectomy); and the remaining 11 times no reason for the nephrectomy was put forth, *it probably being considered the operation of election.*

There is no adequate reason for nephrectomy in any case unless the patient is in danger of dying from hemorrhage. As the statistics indicate that there are a certain number of these cases it is probable that nephrectomy will be performed in a certain percentage of cases. *But certainly not in 38%.*

*Nephrotomy.* The direct operative mortality following nephrotomy was  $5\frac{1}{2}\%$ ; total mortality nearly 7%. 2 died of uremia following nephrotomy. It is interesting that the direct operative mortality of both nephrectomy and nephrotomy was about the same as the operative mortality of nephrectomy for tuberculosis.

The two reasons most frequently advanced for the performance of nephrotomy in these cases are: first, for diagnosis; second, to stop hemorrhage.

*Nephrotomy for diagnosis.* It would seem that for purposes of diagnosis the utmost necessary to make the diagnosis would be to expose the kidney and possibly do a pyelotomy. Tuberculosis should be diagnosed before operation. Stone if the radiograph did not suffice could be diagnosed either by renipuncture or pyelotomy. Neoplasm should be revealed by exposure of the kidney.

*Nephrotomy to arrest hemorrhage.* The recurrences of the kidney hemorrhage after different operations were as follows:

After nephrotomy or nephrectomy, . . . . .	11 recurrences.
After decapsulation, . . . . .	1 recurrence.
After papillectomy, . . . . .	1 recurrence.
After exposure of the kidney, . . . . .	1 recurrence.

Of these 11 recurrences after nephrectomy and nephrotomy, all those after nephrectomy and some of those after nephrotomy were cases of bilateral hemorrhage. On the other hand there were definite recurrences of the hemorrhage from the nephrotomized kidney, as occurred in my own case.

There is no reason from our statistics to suppose that nephrotomy is more efficacious in stopping hemorrhage than any of the other suggested operations, as for example, simple decapsulation.

There are two reasons why nephrotomy should not be done in these cases and I believe that these reasons very much outweigh any argument that may be given in its favor. First, no less than 8 times was it necessary to do a secondary nephrectomy following the nephrotomy, for hemorrhage. Second, every nephrotomy is followed by a loss of functioning kidney tissue. This loss is caused either by the drain which is left in the kidney, or by the sutures. Faltin, (15) after a number of experiments on animals concludes the following: "Any suture through the kidney means a larger or smaller loss of secreting parenchyma. This loss is caused by the consequences of the piercing wound and by the specific irritation of the suture. Any piercing wound through the kidney causes a scar and a cystic dilatation of urinary canaliculi which later on will shrink, become sclerotic and obliterated. By opening a renal vessel a cuneiform ischemic infarct will result." This is emphasized by the fact that death from uremia has occurred following nephrotomy.

*Other Operations: Decapsulation, Pycotomy, Papillectomy, Nephrolysis.* Any one of these seems to be as adequate as the other to stop the hemorrhage. And after any one the hemorrhage may recur. The fact that the bleeding recurs as well after papillectomy as after decapsulation is possibly a point in favor of considering the condition of the papilla secondary to the nephritis.

If all of these operations seem equally adequate for stopping the hemorrhage it would seem best to perform the operation best suited to the primary, or if you will, accompanying condition — the nephritis; as well as the operation that is fraught with the least danger. This operation lies between pycotomy with digital exploration of the renal pelvis, and decapsulation, or a combination of these two. I believe the results of either of these two or the combination, better and less dangerous than papillectomy, and more adequate for stopping the bleeding. One of Femwick's papillectomies had to be followed by a nephrectomy.

*Other, non-operative, Procedures.* The fact that many of these cases stop spontaneously; the fact that Keyes has had cases where the internal administration of turpentine has seemingly controlled the bleeding; the fact that Hagner (16) has stopped the hemorrhage in what were probably 2 cases of Hemorrhagic Nephritis by ureteral catheterism; and the fact that Young (17) had stopped the bleeding by adrenalin injected into the renal pelvis; all these would indicate that if our diagnosis be made,

these non-operative measures should be tried with much patience, and operative measures should only be resorted to when the condition of the patient, bleeding, shock, etc., indicates it. In my case which bled some 2 years after I had performed nephrotomy, the ureters were catheterized, full strength solutions of adrenalin were injected several times into the renal pelvis — all without result, the patient returning to his home and the bleeding stopping spontaneously. I would suggest if the simple non-operative methods do not suffice, that a tight catheter be introduced 15 to 25 cm. up the ureter, a solution of adrenalin be injected into the pelvis and be allowed to remain there (with the catheter plugged so the solution will not return) for increasing lengths of time to see if the bleeding can be controlled — using full strength adrenalin.

#### EXPLORATORY OPERATION FOR DIAGNOSIS

With a better understanding of the pathological conditions underlying Hemorrhagic Nephritis and the proper steps of procedure in attempting to control the hemorrhage, the principal and by far the most difficult question to meet is not the treatment of the disease itself but the differential diagnosis between it and neoplasm. And the question arises if all the symptoms of hemorrhagic nephritis are present; if the patient be less than 50 years, if he be a good subject for palpation and no kidney tumor be present, if the function of the affected kidney be equal to that of the normal one; if these are the symptoms, are we justified in all cases in doing an exploratory operation to confirm the diagnosis? The key to the situation in these cases where the diagnosis of hemorrhagic nephritis is very probable (from 75 to 95% so) lies in the duration of hemorrhage. If the hemorrhage has endured 4 years or more I believe that we are safe in our diagnosis and that an exploration for diagnosis is not justified. I believe that but about once in a thousand cases would a hypernephroma give the above symptoms and so be mistaken for Hemorrhagic Nephritis.

*If, however, there is any doubt about the symptoms, if the diseased kidney be enlarged or if the patient be a poor subject for palpation; if the function of the diseased kidney be  $\frac{1}{2}$  or less than that of its fellow, or if the bleeding has endured less than 4 years, an exploratory operation for diagnosis should be done. If these symptoms be in combination or if the patient be in the fifth, sixth or seventh decades, it emphasizes the necessity of the exploration. Of course there will be borderland cases*

where the condition of the patient, age, bleeding, the more or less conservatism of the surgeon will determine for or against the exploratory operation.

## CONCLUSIONS

*Classification.* In these 73 cases there was a large proportion of cases of mild toxic nephritis, probably unilateral, giving no classical symptoms of nephritis, and giving rise to or accompanied by unilateral hematuria, the hematuria being out of all proportion to the nephritis present.

There was a small proportion of cases of infectious nephritis, probably unilateral, giving rise to unilateral hematuria.

There was a small percentage of cases of typical toxic nephritis giving the symptoms and urinary findings of nephritis, and giving rise to hematuria, probably as a rule, bilateral.

There was an indefinite number of cases of pelvic conditions variously named varicose veins of the papilla, pyelitis cystica, metaplasia of the renal pelvis, etc., giving rise to unilateral hematuria. In a large proportion of cases these pathological conditions of the kidney pelvis or papilla are caused or accompanied by a nephritis, toxic or infectious.

## DIAGNOSIS

Hemorrhagic Nephritis is most frequently confused with kidney stone, tuberculosis and neoplasm. The differential diagnosis between Hemorrhagic Nephritis and Neoplasm is alone considered.

*Symptoms and Differential Diagnosis.*

Hemorrhagic Nephritis		Neoplasm
Etiology — Age, 20 — 50 yrs.		40 — 70 yrs.
Tumor, absent in probably 80%		Present in 60 to 80%
Hematuria, Constant		Present in most cases.
Duration of Hematuria	From days to 30 yrs.	If extends into years all neoplasms but hypernephroma may be excluded.
Duration of Tumor and Hematuria	Hematuria may persist for years with no tumor.	There is a low percentage of cases of hypernephroma where hematuria has existed for some years and in which no tumor is present. This is not so in other neoplasms.

Functional    Generally normal.    Generally decreased  
Capacity

Pain or Kid.    Often present    Often present

Tenderness

Varicocele    Absent    Present in  $\frac{1}{4}$  of cases

If there is any doubt about the symptoms, if the diseased kidney be enlarged or if the patient be a poor subject for palpation; if the function of the diseased kidney be  $\frac{1}{2}$  or less than that of its fellow, or if the bleeding has endured less than 4 years, an exploratory operation for diagnosis should be done.

#### TREATMENT

In a majority of cases the operation was primarily performed for diagnosis and not for cure of the hematuria.

There is no reason for nephrotomy either to arrest hemorrhage or for diagnosis. Nephrectomy is contraindicated unless there is danger of death from hemorrhage. If the diagnosis can be made there is no indication for operative interference unless other means to stop the hematuria fail. These non-operative means are: rest in bed; internal administration of turpentine; injection of adrenalin into the renal pelvis. Of operative methods to arrest the hemorrhage either decapsulation or pyelotomy or both seem more adequate than nephrotomy or papillectomy.

CASE OF PROFUSE UNILATERAL RENAL HEMOR-  
RHAGE. NEPHRECTOMY. PATHOLOGICAL  
REPORT \*

By H. A. FOWLER, M. D., Washington, D. C.

**J**OHNSON T., colored, laborer, aged 26 years, came to the out-patient clinic of Freedmens Hospital April 12th, 1911, complaining of passing bloody urine. About one month before he first noticed that the urine was bloody. Since that time the hematuria has been continuous. In the beginning the urine was markedly bloody, but more recently the amount of blood has greatly increased and with every urination large clots are voided.

The onset was insidious, without apparent cause, and without any associated symptom or disturbance, local or general. Very recently he has noticed a slight pain in the region of the left kidney. This pain has been so slight as to attract little attention and was mentioned only after close questioning.

The family history is unimportant in the present connection. He has been generally healthy up to the onset of the present trouble except for an attack of typhoid fever in 1909. There is no history of injury, operation, or venereal disease. He uses alcohol moderately and smokes excessively.

*Examination.* The patient presents the most striking facies on account of the marked anemia. The pallor of the face is extreme. The mucous membranes and finger nails are pale and bloodless. He complains of great weakness and is easily exhausted. The external genitalia are normal. The urine voided in three glasses is uniformly very bloody with numerous large clots in the first glass. No worm-like clots were seen in the voided specimen. The microscopic examination showed only red cells. There were no pus cells present, and no casts.

Examination of the chest and abdomen was negative. There was no tenderness or muscular rigidity on deep palpation over the left kidney. Neither kidney could be felt.

He was admitted to the hospital and put to bed. On the following day a cystoscopic examination was made. The blad-

\* Read at meeting of American Urological Association, Chicago, Sept. 26, 1911.

der was washed clear with great difficulty, the return flow, even after repeated irrigations, containing considerable blood. On this account it was thought probable the hemorrhage was vesical in origin. The cystoscope, however, showed a long, worm-like clot coiled up on the floor of the bladder. It was the blood washed from this clot which had colored our irrigating solution and led us to believe that probably the hemorrhage was from the bladder. A large round clot completely filling the orifice was projecting from the left ureteral opening. With each contraction of the ureter this clot would protrude further from the opening, and then draw up again into the ureter with the completion of the peristaltic wave. A small fine streak of bright red blood was seen issuing from the orifice on the inner side of the clot and trickling down over the trigone. Attempts to dislodge the clot by massage over the kidney and along the ureter were unsuccessful. The right orifice was normal and from it clear urine was issuing at normal intervals. The bladder was otherwise normal.

The X-ray plate was negative for stone. Tubercle bacilli were not found. Under complete rest in bed and internal medication the hemorrhage continued. The pulse and respirations began to show the effects of the loss of blood, the patient grew weaker, and his condition became alarming. It was therefore decided to operate as the only means of stopping the hemorrhage and saving the patient's life. Accordingly the kidney was rapidly exposed, delivered, the pedicle clamped, and the kidney removed. Very little blood was lost. The blood was extremely thin and watery, and left only a slight stain on the sponges.

Recovery was rapid and uninterrupted. The patient left the hospital on the twentieth day. The urine was free from blood on the day following the operation, clear amber in color and contained no albumin. Following the operation a very marked change developed in the patient's condition and appearance. The anemia began to clear up promptly with the checking of the bleeding.

The kidney was very pale and anemic, but normal in size and contour. On section the cortex appeared normal except for the extreme anemia. No abnormality could be made out in the pelvis or in the papillae. Nothing could be discovered on close inspection to account for the hemorrhage or suggest a clue as to its etiology. Dr. J. S. Neate of the Army Medical

School has kindly examined the specimen for me with special reference to determining, if possible, the cause of the hemorrhage. His report follows:

**HISTOLOGICAL EXAMINATION OF A KIDNEY REMOVED FOR HEMATURIA.**

The kidney when received was over twenty-four hours old and somewhat air-dried. The outer cortex was therefore shrunken and had to be disregarded in the examination. It was sectioned and preserved in Orth's fluid. The entire kidney was cut up into pieces  $\frac{1}{8}$  inch in thickness and examined with a lens for evidences of varices in the papillae. In all fourteen pieces were embedded, sectioned and studied microscopically in a futile effort to find an adequate cause for the hemorrhage.

The kidney in general was found to be bloodless, very few intact red blood cells were found, their place being occupied by shadows and homogeneous pink-tinted coagula.

From the view point of the etiology of the condition (hematuria) the degree of nephritis is practically negligible. The capsules of the glomeruli are found to be everywhere distended and the contained tufts shrunken in appearance, richly cellular, with evidences of proliferation of their covering cells. Bowman's capsules are almost uniformly but moderately thickened and their lining endothelium shows irregularity in arrangement and excessive proliferation. Quite a few of these capsules contain a homogeneous, hemoglobin-stained exudate, while a small number of them are represented by whorls of fibrous tissue, the result of chronic passive congestion.

The epithelium of the convoluted tubules exhibits a fine granular degeneration, these cells show ragged edges, many "dropped" nuclei and there is present a moderate amount of debris in the lumina. Connective tissue increase is nowhere conspicuous and the lesion is of the parenchymatous type.

The epithelium of the collecting tubules is fairly well preserved, but many of these give the appearance of having been unusually distended and the presence in many of them of hemoglobin-tinted coagula suggests blood as the cause; a few indeed are so much distended as to be rightly denominated cysts and these also are filled with the albuminous exudate before referred to.

Between the tubules of the papillae there are irregular areas of hyaline degeneration, a few distended capillaries and minute interstitial hemorrhages, but none of sufficient extent to



explain the excessive amount of blood lost by the patient. An examination of the apices of the papillae together with their outlet ducts reveals no varices or telangiectatic condition of the blood vessels. Many of the ducts, however, contain vestiges of the hemoglobin-tinted coagula.

Some of the medium sized arteries exhibit degeneration of their walls, chiefly evidenced by nodular areas of excessive proliferation of cells in the intima and media; an irregularly distributed condition of endarteritis, but not confined to any part of the kidney. With appropriate staining many foci of bacteria can be demonstrated in these degenerated areas and in the surrounding adventitial tissue. But much stress cannot be laid on the presence of these bacteria because delay in the preservation of the specimen permitted of the post-mortem multiplication of microorganisms and in addition their presence is not accompanied by the cellular and leucocytic reaction we are accustomed to see under such conditions.

Another feature which invites attention both macroscopically and microscopically is the distension of some of the large veins; ten areas were noted, in which they are conspicuous. A number of these were located near the apices of the papillae and the others at the junction of the cortex with the medulla. Now these large veins while not exceeding in size those frequently found in chronic lesions of the kidney, because of their evident irregularity when contrasted with similar regions of the same kidney, merit some consideration in this connection. Their condition at least indicates the lack of vascular tone and equilibrium which we assume must have been present.

From the examination of a large number of sections, in some cases serial, from this kidney we may say that no angiomatous or varicose condition exists in the vessels of the papillae sufficient to account for the hemorrhages such as have been described in similar cases by other investigators. On the other hand there appears to be evidence that much of the hemorrhage, or at least excretion of hemoglobin, occurred by way of the glomeruli and tubules, as shown by their distended condition and the collections of laked blood both in the capsules and in the cystic distensions in the course of the tubules.

In addition we have present patches of endarteritis and irregularly distended veins and while it is possible that considerable blood might have escaped through rupture of such dam-

aged vessels, no microscopical evidence of such occurrence has been found.

A better knowledge of the condition of the capillaries of the glomeruli is much to be desired in this case, but it is unfortunately not obtainable owing to the faulty preservation of the specimen.

In conclusion we feel that an adequate explanation of the hematuria in this case has not been discovered from the histological examination, and that like some similar cases it must remain in the column of "cause unknown."

The Cumberland.

## PROPHYLAXIS AND TREATMENT OF POST-OPERATIVE ANURIA

By E. O. SMITH, M.D.

Professor of Genito-Urinary Surgery, Medical Department, University of Cincinnati, Cincinnati, O.

**T**HE success or failure of a major operation depends largely upon the activity of the kidneys, of course barring faulty technic and bad surgical judgment of operator.

The functional activity of the kidneys may be influenced by the shock incident to a major operation, by the anesthetic, by trauma to one or the other kidney, by calculi, or by ureteral obstruction from any cause. Hysterical anuria or oliguria, if such a thing is possible, seldom follows operations.

There are still some of us who are skeptical as to a reflex anuria. A sudden blocking of one ureter affects the kidney on the opposite side by suddenly throwing upon it increased work, and if the kidney is normal it will quickly adjust itself. Anuria following ureteral catheterization is due to the fact that the patients have been deprived of water prior to examination. To avoid this, give plenty of water just before the examination. The effect of traumatic disturbance of one kidney in producing anuria is due to the shock and to the call for double duty by the other kidney. All surgeons are familiar with the diminished urine output for several hours after an operation. By many it is considered a mere incident unless it is so marked and persists so long that the patient's life is despaired of. The degree of disturbance produced by the above mentioned agencies depends upon the condition of the kidneys at the time. If the kidneys are histologically and physiologically normal at the time of the operation I believe that the effect of the anesthetic, shock, etc., on the kidneys will be so slight and so transitory that the patient will suffer no marked or permanent ill effect.

Fischer's theory of nephritis, which has been proved both experimentally and in clinical application, is that the activity of the kidney is altered by the presence of an increased acidosis. He claims that the kidney parenchyma, that is between the blood on one side and the urine on the other, is a colloid material which in the presence of abnormal acidosis becomes edematous and does not permit the passage of water from the blood stream to the uriniferous tubules. In other words this colloid substance takes on

water but does not give it up. When the acidosis has been overcome or reduced sufficiently the kidney parenchyma loses its edema and again resumes its function.

Heart and lung lesions, muscular exercise, mental disturbances, disturbances of the renal blood supply, and toxic matters in the blood, all produce an increased acidosis and the symptoms of nephritis. While this applies to nephritis generally it is all the more applicable to post-operative suppression of urine.

It is not all of surgery to make a diagnosis of a surgical lesion and proceed to operate. There are three distinct periods of every surgical case that require special care and attention. The preoperative period, the operation, and the post-operative period.

*The preoperative period* is the time prior to the operation when the patient should be studied most carefully and prepared for the operation. This period may be a few days, a few weeks, or it may be the only period, if the patient cannot be sufficiently improved to make the operation comparatively safe. During this time the patient is examined most thoroughly as to his heart, lungs, etc., with particular attention to the renal activity.

It has been noticed that when continuous bladder drainage has been instituted, the specific gravity of the urine in some cases was reduced from 1025 to 1008 or 1010. When this occurs or when the specific gravity was low prior to the drainage, operation should not be attempted until this has gone up to 1020 or more. There is one exception to this and that is when there is a decided polyuria, in which case there is a good output of urea, etc. On the other hand we may have a patient with a high specific gravity and high percentage of urea but who will still be a bad surgical risk, because of diminished amount of urine. A careful urinalysis should precede every operation.

It is best to make a further study of the functional activity of the kidneys before operation. This is based upon the observations that normal kidneys remove from the circulation certain drugs that have been introduced, within a certain time and that marked deviations from this time represents abnormal kidneys. Numerous tests have been suggested, but only three are now looked upon as being reliable. They are phloridzin, indigo-carmin, and phenolsulphonphthalein.

Phloridzin has the peculiar property of producing a glycosuria in normal kidneys. In kidney disease the glycosuria either does not appear at all or is delayed. Five milligrams of the drug is introduced subcutaneously and in normal cases sugar appears

in the urine in from twenty to thirty minutes. The urine is collected and examined for two or three hours having reached its maximum at the end of the first hour.

Indigo-carmin is best introduced into the gluteal region, using 4 c.c. of a 0.4% solution. If the kidneys are normal the urine will show a bluish tinge in fifteen to eighteen minutes, after the injection. If the appearance is delayed and the color more greenish than blue it indicates diminished kidney activity.

The most reliable and valuable of all is the phenolsulphone-phthalein test as developed by Rowntree and Gerahty. In brief this consists in introducing into the upper arm 1 c.c. containing .006 of the drug. This should show in the urine in from fifteen to twenty minutes. During the first hour 40 to 50% of the drug is excreted as is determined by a colorimeter, and 20 to 25% during the second hour. Variations from these figures indicate damaged kidneys. It can be administered intravenously in which case it appears in the urine in from two to five minutes and a greater percentage (75 to 80) is excreted during the first hour.

This test has proved to be very reliable and has saved surgery a mortality on many occasions. Some cases that showed at first a diminished functional activity, at which time they would have been bad surgical risks, after having been treated improved so much that operations were safely performed. Others showed no improvement from treatment and died the "natural way" within a few weeks. If the renal function is normal and there are no other contraindications for operation, a very short period of preparation is all that is necessary. It is my opinion that a patient is better prepared to withstand an operation. If muscular activity produces acidosis, rest will diminish it. Of course there are emergency cases that must be deprived of the benefit of the preparation treatment.

During the preparatory period the patient should be well fed with easily digested nutritious food containing few proteids. He should have plenty of water and above all things his system should not be depleted of water by copious purging with salines immediately before the operation. The intestinal tract should be thoroughly, but gently, emptied by the administration of castor oil the day before and an enema a few hours before the operation. He is allowed to drink water up to within one hour of the operation. The kidneys cannot secrete urine when the system has been deprived of its water. In surgery of the urinary tract, particularly prostatic surgery, a great deal can be done to help the patient by

continuous bladder drainage through a catheter retained in the ureter for a few days prior to operation, or in very bad cases suprapubic cystostomy performed under local anesthesia. In this way back pressure is removed from the kidneys and they will function much better, thus improving the patient's condition and increasing his resistance to shock, sepsis, and post-operative anuria.

Having decided to operate, the patient should be prepared and anesthetized with as little confusion as is possible. This is an anxious time for most patients, and their mental state should be as composed as possible. If the patient is particularly nervous he should not be required to walk into the operating room, mount the table, and there take the anesthetic. This should be administered in a near-by room where all is quiet. Ether is the anesthetic to be generally preferred, but in bad risks, such as old people and those known to have a bad heart or bad kidneys, where operation is imperative, nitrous oxide-oxygen is the anesthetic of choice. There is less toxicity carried into the circulation from this than from any other anesthetic and less cardiac and respiratory depression, hence less liability to kidney disturbance. The patient is not left saturated with the anesthetic and is seldom troubled with nausea and vomiting afterwards.

The operation should be done as rapidly as is consistent with good work; for the longer the operation the greater the shock, and the greater the shock the greater the circulatory disturbance, in consequence of which the blood supply to the kidney is diminished, a very apparent cause of renal inactivity. The surgeon should not waste any time lecturing or demonstrating the operation to bystanders, the same as if he had a cadaver before him. His whole duty is to the patient who is under an anesthetic, and besides surgeons are not made by watching surgery at a distance for ten days or two weeks. In short everything should be done to lessen the shock and amount of anesthetic.

The surgeon's duties to the patient do not end with the introduction of the last suture. A great deal can be done in the next few hours to sustain renal activity and to prevent urinary suppression. Immediately following the anesthetic the patient should be given oxygen inhalations. In old people and bad risks this should be continued for several hours. This same class of cases should receive at least two pints of saline solution under the skin and when returned to their beds proctoclysis of saline solution about forty drops to the minute should be started and continued for several hours, repeated at intervals for several days if there

are any evidences of renal failure. As soon as the patient awakens from the anesthetic he is given hot water and plenty of it. The conditions existing during an operation are those that tend to produce an inactivity of the kidneys and these can best be overcome by increasing the blood pressure by increasing amount of fluid in the vessels, which bring more blood to the kidneys. The toxicity and acidity of the blood has been reduced by dilution and salt.

The former custom of withholding all fluids from the patient for twenty-four hours after operation, and until drastic catharsis has been established, was all wrong and has no doubt worked greater disaster than we know.

Hiccough and persistent vomiting following operations is indicative of diminished renal activity and should be looked upon as a symptom or a note of warning rather than an independent complication calling for special treatment.

Thus far we have considered those phases of the patient and the operation that would be prophylactic in nature. When these plans are followed there will be few cases of post-operative anuria. If shock and anesthetic are reduced to a minimum and proper care taken of patient before, during, and after operation, anuria will develop only in the desperate cases. When anuria does occur the best treatment is fluid introduced directly into the circulation, sweating, and morphine. Immediately on the development of suppression sufficient morphine should be given to keep the patient quiet. Formerly only salt solution was given intravenously, but Fischer's alkaline solution has proven more efficacious in acute anuria. This consists of giving intravenously in desperate cases — or by proctoclysis, forty to fifty drops per minute, in less pronounced cases — a solution made as follows: sodium carbonate crystals 10 grams dissolved in 200 c.c. distilled water and allowed to cool, this is then added to salt solution 14 grams to 1000 c.c. distilled water, sterilized and cooled. If these solutions are combined while hot, sodium hydroxide will be formed, which is very irritating. If given intravenously, this amount can be slowly introduced and repeated in a few hours without harm. Very gratifying results have followed the use of this solution per rectum. In whatever manner it is introduced into the circulation, renal activity is resumed in a few hours. One must not give up if the effect seems transitory, but it should be given often enough to keep up the effect until urine secretion has been produced and sustained.

As the skin is an avenue of elimination, sweating should be encouraged.

## FRAGMENT OF GLASS IRRIGATING NOZZLE REMOVED FROM THE BLADDER WITHOUT OPEN OPERATION

BY VICTOR C. PEDERSEN, A.M., M.D., New York

**T**HE following case may be of interest in illustrating the risk of glass irrigating nozzles used for connection with metal instruments about the cavities of the body.

A colleague in a suburban town telephoned me that he had broken off in a cystoscope the tip of the glass irrigating nozzle, and washed it into the bladder of a man during ordinary preparation of the bladder for cystoscopy. Upon my inquiry, he stated that he had seen the fragment with the cystoscope, and had, by filling the bladder, endeavored to have it washed out spontaneously. There had been no bleeding following the accident.

I requested him to bring the patient into town at once without further intervention, but prepared to enter a hospital for operation, if simpler means failed to extract the offending fragment.

Upon arrival I verified his previous statements, and concluded that in as much as we were dealing with a more or less sharp fragment, as indicated by the large piece of the tip which he had brought, it was wiser not to subject the bladder to another cystoscopy for fear of stirring up various reflex renal phenomena, too well known to need mention.

The calibre of the urethra was 30 F. I therefore took the 28 F. size of Chismore's evacuating instrument, filled the bladder to the utmost capacity without pain, attached the suction bulb and began to pump. To my delight, the fragment was felt to fall into the receiving bottle with the third suction.

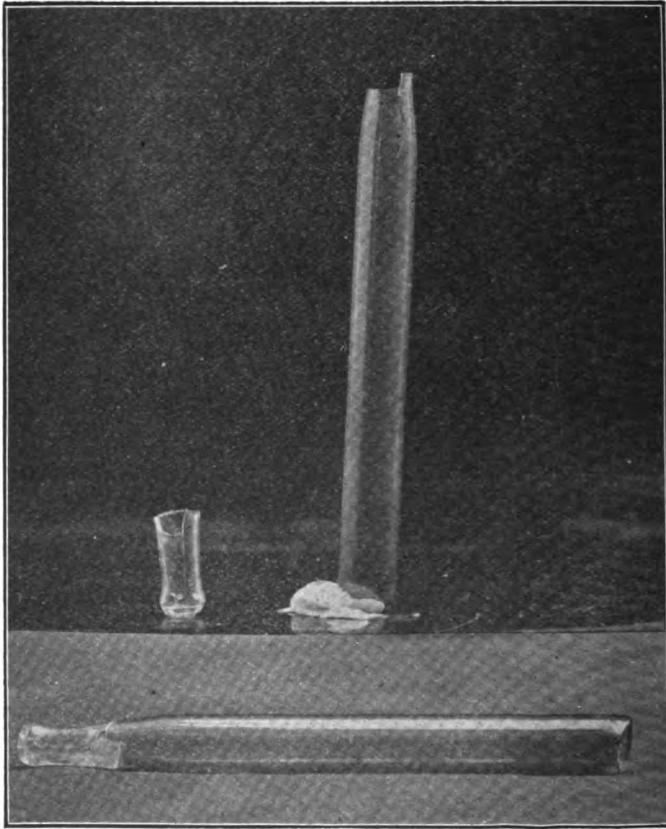
The bladder was then washed and filled again to the full limit with warm boric acid, which the patient evacuated, thus cleansing the bladder and urethra completely. No unfortunate results of any kind showed immediately or remotely; in fact, it is now eight or nine months since the incident occurred, and the physician has informed me that the patient is in every way well.

The photograph shows the tip and the fragment assembled in the lying down position, and as separated in the standing posi-



tion. The happy outcome of the case through management so simple, seems to excuse its publication. It is hoped that this little experience will be of service; first, in indicating the danger of endeavoring to use glass for connecting with metal instruments; second, in suggesting the great usefulness of an instrument like Chismore's evacuator in recovering small foreign bodies from the bladder.

45 West 9th Street, New York City.



## A CASE OF BURN OF THE URETHRA WITH LUNAR CAUSTIC FOLLOWED BY A COMPLETE CAST OF THE URETHRA

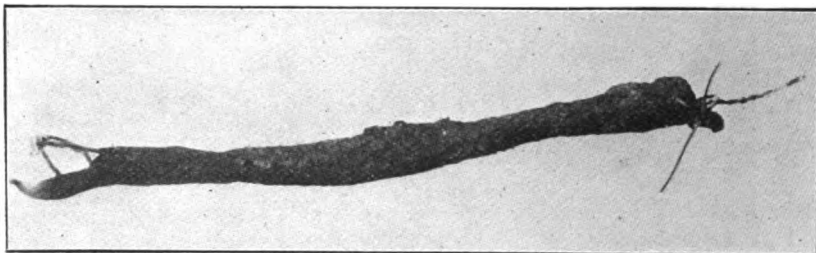
By VICTOR COX PEDERSEN, A.M., M.D., New York

**S**LOUGHS of the urethra in the form of complete casts are not very common, because the origin of such sloughs is in itself unusual, namely, the introduction of caustic sufficiently strong to destroy the mucous membrane in its entirety for a considerable region of the urethra. The following is an example of a silver nitrate burn of the urethra, followed by a complete cast about five inches long, as shown in the photograph:

A. M. T., about 28 years old, white, single, machinist. He admitted syphilis and a number of attacks of gonorrhea, which he had treated more or less successfully himself with proprietary and other means obtained through druggists' advice. He also admitted a moderate stricture. When first seen, he was engaged to be married, with the usual result of positive stimulation of his sexual appetite. In gratifying this, he acquired a gonorrhea. Realizing that his approaching marriage rendered the promptest possible cure necessary, he reported at a drug store and asked for a "bougie used to burn it out." He claimed that he showed the druggist the approximate length of the bougie. Through error or carelessness, the druggist gave the man a stick of silver nitrate, which the patient accepted after demurring and stating that he thought it might be right, but was not certain. Even this attitude of doubt did not seem to impress the druggist with the likelihood that a mistake was being made. The patient went home, introduced the caustic into his urethra, which he said was followed by excruciating pain and then by loss of sensation. The caustic did not remain in the urethra many minutes, and soon the pain began again with agonizing chordee and profuse discharge. When first seen, the patient presented a penis which was twice its natural size, a free discharge, at first without, later with gonococci, obstruction through which he could barely urinate, and in short, a pitiable condition. The lining of the canal seemed necrosed for a sixteenth of an inch in depth, including, of course, the entire thickness of the mucosa. The patient was taken to the hospital, the deep urethra was button-holed, the bladder drained, and both these regions were irrigated two or three times a day with a weak permanganate of potash solution.

Both bladder and deep urethra remained uninfected under this treatment. In about four days, a slough of the anterior urethra was cast in one piece about four inches long, and is shown rather well in the photograph.

The case thereafter made an uneventful recovery, excepting for the fact that the first four or five inches of the anterior urethra were converted into a dense stricture, which could not be dilated above 23 F. About eighteen months after this wretched accident, partly through brooding over his condition, partly through disappointment through the breaking of his engagement to be married, and partly through the syphilis, the man went insane, and is to-day an inmate in one of the public institutions. The Superintendent of this asylum reports as follows as to his present condition:



"STATE OF NEW YORK — CENTRAL ISLIP STATE HOSPITAL,  
CENTRAL ISLIP, LONG ISLAND.

G. A. Smith, M.D.,  
Superintendent.

November 14th, 1911.

T.

*In re A. M. T.*

Dr. V. C. Pedersen,  
45 West Ninth Street, New York City.

*Dear Doctor: —*

Referring to your letter of recent date regarding the above patient, would state that during his residence here he has not suffered any discomfort from his urethral condition. Over one year and a half ago, while at Ward's Island, he was treated with sounds, but this treatment has not been required here.

He is a case of dementia praecox of the paranoid type, and not a suitable patient to examine with instruments, except under an anesthetic, for he is very excitable, resistive and assaulting.

Very truly yours,

(Signed)

G. A. SMITH, Superintendent."

Not the least of this poor patient's calamity is the fact that his infirmity has necessarily nonsuited him in his claim for damages against the druggist who was responsible for this very pathetic blunder. A remarkable feature of this case is the fact that notwithstanding the intense damage to the urethra the patient even now has comparatively little obstruction, although the first four or five inches are converted into a solid cicatricial mass.

The case seems sufficiently unique to merit individual publication.

45 West 9th Street, New York City.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

### ELEPHANTIASIS CUTIS PENIS <sup>1</sup>

M. L. HEIDINGSFELD, M.D.

Prof. of Dermatology, University of Cincinnati; Dermatologist to the Cincinnati Hospital.

**E**LEPHANTIASIS cutis penis, in its various clinical phases, is by no means an infrequently encountered condition in the writer's clinical and hospital experience. The following case, however, presents some features of such uncommon nature that they merit some study and report. Elephantiasis of the genitals, if we eliminate those cases which possess mere tropical interest and incident to *filaria sanguinis hominis*, is due chiefly to two causative factors — late syphilides of vegetating and ulcerating character which have become secondarily infected with pus formers; or to mechanical obstruction of the lymph circulation, incident usually to extensive operative interference to relieve infections inflammation of the inguinal glands. Of these two classes, the former presents by far the larger quota of cases. In these the elephantiasis is of transient nature and is commensurate with the extent, duration and character of the active syphilis. These neglected lesions, which yielded rather slowly to local and constitutional measures in the past years have responded uniformly well, in the writer's experience, to salvarsan. The elephantiasis in these cases, receded with the disappearance of the local lesions. The writer is strongly inclined to believe that the vast majority of the cases of elephantiasis of the genitalia, male and female, recorded in the literature, belong to this class of cases. (Ravogli, etc.)

Elephantiasis incident entirely to obstructive lymph circulation and secondary to infection, inflammation and operative interference, possesses, in spite of its more infrequent character, greater clinical significance. This condition was brought to the attention

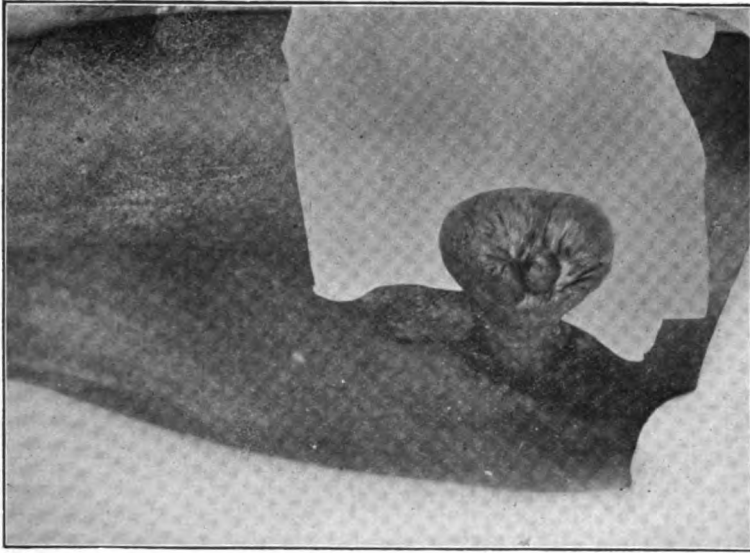
<sup>1</sup> Presented to the Cincinnati Academy of Medicine Feb. 26, 1912.

of the medical profession by Brouardel before the French Dermatological Society, June 11, 1896, and is called Brouardel's elephantiasis. G. Lewin, however, presented well defined examples of the condition before the Berlin Dermatological Society, May 12, 1896.

The well defined cases in literature are almost entirely incident to radical bilateral extirpation of inguinal glands in suppurating bubo, a procedure that was far more popular and more universally employed two decades ago, than at the present date. Radical extirpation is rarely practiced at the present day — not only because of the fear of a complicating elephantiasis, but because experience has taught that simple incision, merely large enough to allow free drainage of the pus, answers admirably better than most other measures. Some operators have resorted to free extirpation when a suppurating bubo failed to drain properly and freely, and the inflammatory induration took on fresh impetus, as for example, when syphilis was superadded to the chancroidal infection. Salvarsan is capable of promptly removing this superadded element, so that the number of future cases of post-operative elephantiasis of the penis give every prospect of becoming materially diminished. Elephantiasis similar to other forms of connective tissue over-growth is more common in the negro race and the following case, is, in that respect, confirmatory.

C. T., negro laborer, married, age 45 years, was admitted to the Dermatological and Venereal service of the Cincinnati Hospital, Feb. 5, 1912. The patient was normally well developed, five ft., 10 inches in height, weight 170 lbs., and in good physical health. He presented and complained of no abnormal symptoms save that of malformation of the penis, and physical inability to consummate sexual congress. The penis was normally well developed in characteristic conformity to the race. The flaccid penis measured  $5\frac{1}{2}$  inches ( $14\frac{1}{2}$  c.c.) in length from radix to the tip of the prepuce, and  $4\frac{1}{2}$  inches (11 c.c.) in circumference at its base. Glans penis and radix were both normal in character. The prepuce was enormously enlarged and funnel-like in appearance. (See Fig.) The free edge of the prepuce measured  $10\frac{1}{2}$  ( $26\frac{1}{2}$  c.c.) inches, almost one foot in circumference, or more than twice that of the cutis at the base of the penis. The lower or inferior border was abnormally protracted, measuring  $7\frac{1}{4}$  inches ( $18\frac{1}{2}$  c.c.) from base of penis, and the upper, or superior border, seemed abnormally retracted behind the glans, and measured only four inches (10 c.c.) from the base. The overlying skin, covering the penis in its entirety, was smooth and free from scales, crusts, papillary

excrescences, and all forms of inflammatory processes. Coitus has been physically impossible for the past twelve years. Patient was admitted to the Cincinnati Marine Hospital in 1900 for *ulcera mollea* and bilateral suppurating bubo, and underwent a double radical extirpation of the affected glands. An edema of the penis promptly followed the procedure and persisted for twelve years without undergoing material change.



The case is instructive, inasmuch as it demonstrates that radical extirpation of the inguinal glands, can, of itself, without local infection and inflammation, lead to permanent elephantiasis cutis penis; that elephantiasis of this character can lead to physical sexual impotence; that radical extirpation of inguinal glands is contraindicated in cases of suppurating bubo where free drainage of pus can be effected by a simple incision; that even in cases of suppurating bubo with superadded syphilitic infection, where the inflammatory induration becomes persistent and more extended in character, salvarsan will hasten the resorption and restitution to normal, with possibly greater facility and with less attendant danger, than radical surgical extirpation.

## REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman  
and Walter J. Heimann.

### ANNALES DES MALADIES VÉNÉRIENNES

No. 2, February, 1912.

1. Anti-Syphilitic Therapy and the Wassermann Test. By Gougerot and Parent.
2. Chronic Prostatic Gonorrhea, Its Therapy—Chiefly by Means of X-Ray. By Drs. Tansard and Fleig.
3. A Study of Cerebro-Spinal Fluid in Syphilis Treated by 606. By Lévy-Bing, Duroeux and Dogny.

#### 1. Anti-Syphilitic Therapy.

This represents a serial discussion of the above theme and will be reviewed in full when the article is complete.

#### 2. Chronic Prostatic Gonorrhea, etc.

Drs. Tansard and Fleig first review the well known symptoms and signs of prostatic gonorrhea. Their therapeutic methods are the following: In subacute prostatitis 100 c. c. of water heated to 112° F. are injected rectally twice a day and retained for ten minutes. Following the evening injection a 4-6 gr. ichthyol suppository is inserted. Sitz baths are also used. With waning symptoms, prostatic massage is indicated; also irrigation of the bladder with 0.5 gm. each of silver nitrate and zinc nitrate to 100 c. c. of distilled water, 5-10 c. c. of which are diluted with a litre of water. The patient should lie on his right side, and the physician should stand to the right of the patient. The right index finger is inserted into the rectum, the left hand is upon the patient's abdomen. Between the index finger and the left hand, the prostate is massaged energetically, but not violently, for three minutes. This should be done four times a week until the fluid previously injected into the bladder returns clear. Such treatment alone may suffice, but it is better to augment it by a post-urethral silver nitrate instillation every fourth day. In chronic prostatitis, massage and instillation of the prostate alone will suffice without any balneotherapy. Dilution to No. 60 Beniqué should be practiced.

Electro-therapy is also indicated. There are two methods: faradization, and high frequency current.

1. Apostali introduced faradization. An electrode 10 centimeters square moistened in tepid water is held over the pubic region. It is fastened to an induction coil. The other electrode is fastened by means of a catheter until the tip enters the prostate. A current interrupted every six or eight seconds is employed and it is increased by

shoving the secondary into the primary coil, but not to an extent sufficient to cause pain. Congestion and inflammation and discharge from the prostate are very rapidly relieved. Objections to the method are possible syncope and occasional infection.

2. The current of Oudin and Doumer may be employed. The Doumer electrode, attached to the superior portion of an Oudin resonator, is introduced as far as it will go into the rectum, or a Beniqué sound may be introduced into the urethra to the prostate. The treatment is painless and should last ten minutes and is given every four days.

Radiotherapy seemed even better. X-rays filtered so that the soft rays were absorbed and the penetrating rays allowed to pass through the skin, were applied perineally. A piece of aluminum one millimeter thick was the filter and it was placed half way between the anticathode and the skin of the perineum. The treatments were repeated every five days until six or seven units H. had been administered, which were found sufficient to cure a prostate. After eight sittings, a mild dermatitis arose which vanished in a week. Fourteen applications constituted the maximum necessary to cure, although the average number was only from five to eight.

### 3. A Study of Cerebro-Spinal Fluid in Syphilis, etc.

Drs. Lévy-Bing, Duroeux and Dogny recall four cases published by them in which Salvarsan intensified cases of cerebro-spinal lues. This suggested a study of the cerebro-spinal fluid in cases of this variety treated by Salvarsan. Lumbar punctures were made between the fourth and fifth lumbar vertebrae. Ten cubic centimeters were taken and the fluid was found constantly clear and limpid. Examinations were made for sugar and albumin; the Wassermann test was performed upon the fluid, and a cytological study was also made. The series comprised twenty cases which fell into two groups,—those clinically of the meningitis type, of which there were seven, and those in which there was no frank meningitis and in which the cytology was characteristic of lues, a lymphocytosis being present. The Wassermann test was positive only in the severer cases. Salvarsan did not modify the picture.

## ZEITSCHRIFT FÜR UROLOGIE

Vol. VI, No. 1, 1912.

1. The Surgical Treatment of Chronic Nephritis. By B. N. Cholzow.
2. Sexual Neurasthenia. By M. Porosz.
3. Contribution to Our Knowledge of the Prostatic Granules. By E. Björling.
4. The Estimation of Residual Urine. By C. Adrian.
1. The Surgical Treatment of Chronic Nephritis.

Cholzow believes that the good effects of decapsulation must de-



pend upon the following two causes: (1) diminution of the intrarenal pressure leading to better circulation; (2) improvement in the circulatory condition of the kidney by virtue of the establishment of a new circulation. This depends upon the formation of new vessels and anastomoses, by adhesion of the organ to the surrounding tissue.

Experiments on animals, however, have shown that although the immediate effect of decapsulation of the kidney manifests itself in the formation of young blood-vessels, these are always replaced by dense connective tissue after an interval of four weeks so that the belief that a collateral circulation can be established has no evidence to sustain it.

Certain authors have expressed the view that the new-formed connective tissue may have a deleterious effect upon the renal cortex, inasmuch as it may lead to obliteration of a healthy parenchyma. This assumption however, is not supported by the testimony of those who have experimented with the normal kidney. Their findings show that the changes produced by decapsulation are very slight and only implicate the most superficial layers of the kidney.

Although the weight of experimental evidence and anatomical investigation favors the view that the establishment of a collateral circulation can have no marked effect in ameliorating the renal circulation, the possibility of a temporary favorable influence cannot be denied.

Only in this way could we explain the cases of marked improvement after post-operative procedure. Thus Porcile showed that the hemorrhagic infarctive process produced in animals by the ligation of the renal artery (when this experiment followed a previous decapsulation) was far less extensive than in the controlled animals. If the ligation was done at a later date, namely when the new-formed vessels formed by decapsulation had already atrophied then the good effects of decapsulation were absent.

Clinically, the operative result manifests itself in a disappearance of the edema, improvement in the force of the heart-beat, re-appearance of the appetite, increase of strength, better diuresis, diminution of the albumin and casts and increase in the urea output and chloride excretion.

According to Guiteras the records of 120 cases show: cure in 16%, 40% improved and negative result in 11% and death in 33%.

The statistics of Edebohls are as follows: Of 102 cases 42 died (however, only 10 of these died within two weeks after the operation). Of the 53 who remained alive all were improved, 33 were cured, in 6 there was no improvement, and from 3 no data could be obtained.

For the operation of Edebohls the indications are extremely limited, according to the author. Cases of generalized edema with poor heart action, and also the cases with a very chronic course are not

in his opinion good subjects for operation. The procedure should be limited to patients in whom the symptoms are menacing, in whom uremia threatens, with anuria, marked oliguria, hematuria, or pain.

Thanks to the ingenious application of the Talma operation, according to Claude, the operation in question has acquired a much wider field of usefulness. It has been experimentally shown that the envelopment of the kidney in omentum after decapsulation produces a much better and more extensive, and more permanent improvement in the intra-renal circulation. This operation then, can be resorted to, not only in cases of anuria, hematuria, but also in the milder nephritis cases in which there is considerable impairment of the general condition with the usual urinary changes.

As a rule the operation should be carried out on both sides, either at one or two sittings. In cases of unilateral bleeding, one kidney alone should be attacked. In eclampsia, too, certain authors have had very good results, Sitzenfrey claiming 60% cured.

As for the results of operation in the author's three cases, nephrotomy was done in one case and decapsulation in two, the results being about the same in all three cases. The former operation is of course only indicated when it is necessary for diagnostic purposes. Although the symptom of pain was not relieved as quickly as one might expect after the operation, the author was much gratified by his results, the improvement was gradual, marked, and after about a month the pain had practically disappeared.

## 2. Sexual Neurasthenia.

M. Porosz, analyzing the pathogenesis of sexual neurasthenia, recalls the fact that in 1902 he already described a condition called atony of the prostate, which he believes is one of the factors responsible for many of the urinary and sexual symptoms. The author holds the view that there is a sphincter spermaticus which prevents the exit of spermatic fluid. When this muscle is atonic or weak, any increase of abdominal pressure such as attends the lifting of heavy objects, may induce spermatorrhea. In short, the prostate gland is atonic which means that our therapy should be directed toward increasing the muscle tone. The use of the faradic current is therefore indicated in the condition under consideration.

## 3. Contribution to Our Knowledge of the Prostatic Granules.

C. Adrian points out that the prostatic granules are not all of the same nature and reports the result of his investigation with a view to differentiating the various granules from a morphological, chemical, tinctorial and optical standpoint. If fresh prostatic secretion be examined with the oil immersion lens in the hanging drop three varieties of prostatic granules can be distinctly defined. All

three were regularly found in cases examined by the author; their relative numbers vary.

The most easily recognized as well as the most typical form of granule is the hyaline. These are characterized by a thin circular linear limiting line which encloses a space that can hardly be distinguished from the surrounding fluid except perhaps for a pale grayish color. They can be best compared or likened to soap bubbles.

The granulated type of granules can be best distinguished if it is compared with leucocytes. They are not transparent, and have a ground-work similar to that of the white cell. Their form is peculiar, being often elongated in an irregular fashion. At times, it is possible to recognize amoeboid movements in them. Although such is their appearance under the heated stage of the microscope, they are apt to be smaller and rounder at room temperature. The author believes that they are portions of leucocytes. Possibly they are derived from the white cells by fragmentation, or perhaps, by extrusion of protoplasm. Usually these granules are somewhat smaller than the hyaline variety, being about one-third the size of a leucocyte.

The third variety of prostatic granule resembles closely the fatty highly refractile droplets that so frequently lie in the leucocyte. With transmitted light, they appear to have big dark contour which make a conspicuous contrast to the attenuated outline of the hyaline granules. Inasmuch as it has been shown by Kaiserling that such fatty bodies elsewhere were really lipoid in nature, and since Posner demonstrated the presence of fat-like granules in the prostate, the author also leans to the view that the granules under consideration are of a lipoid nature.

#### 4. The Estimation of Residual Urine.

Emphasizing the value of careful estimation of the residual urine in cases of chronic urinary retention, C. Adrian calls attention to the untoward symptoms and dangers that may follow in the wake of a sudden emptying of the bladder in cases of chronic distension. The following complications may be mentioned. First, transitory loss of consciousness, fainting and vomiting; second, marked cramp-like pains in the region of the bladder; third, bleeding by virtue of the establishment of a vacuum, the hemorrhage may not only take place in the bladder, but also in the renal pelvis; fourth, local as well as general infections; fifth, acute insufficiency of the kidney; anuria, and acute uremia; and sixth, sudden loss of the ability to spontaneously micturate.

In view of the large number of conditions in which chronic retention exists, and in view of the gravity of the condition it behooves us to investigate with great care the degree of distention of the bladder before the patient empties his bladder. Two methods for obtaining information on this point are available: the chemical and the physical.

If we do not wish to empty the bladder of a patient completely, and still wish to gain a notion as to the quantity of retained urine, an easy chemical method is one in which the chloride content of a given evacuated portion is compared with the chloride content of a second portion which is drained after the injection of a known quantity of distilled water.

The following are the steps in the procedure: (1) Tapping of a known quantity of the bladder content with a catheter; (2) filling of the bladder with the same quantity of distilled sterile water; (3) the removal of the same amount of the mixed urine, or rather diluted urine; and (4th) the quantitative determination of the chloride content of the undiluted and the diluted specimen.

Physical methods depend upon the same principle of determining certain physical properties of the urine before and after dilution. Either the freezing point, the electrical conductivity or the specific gravity may be estimated.

With these methods the author has been able to determine with a fair degree of accuracy the amount of chronic retention without completely emptying the bladder.

#### ANNALES DES MALADIES DES ORGANES GENITO-URINAIRES.

Vol. XXIX. Sec. II. No. 24.

1. Carcinomatous Degeneration of an Hypertrophied Prostate. By Lioucoumovitch.
2. Suprapubic Section followed by Intestinal Obstruction by a Mass of Worms. By Mélikiantz.
3. The International Urological Congress.
1. **Carcinomatous Degeneration of an Hypertrophied Prostate.**

Although the association of the hypertrophy of the prostate and carcinoma of the gland, or, as some regard it, malignant degeneration of an hypertrophied prostate is not uncommon, careful reports of such cases are rather rare in the literature. It is true that Albarran and Hallé in their examination of 100 prostates that gave the microscopic picture of benign adenomatous hypertrophy, found atypical epithelial proliferation, in fact, carcinomatous degeneration, in 14 instances. The author relates the history of a case in which the pathological examination of the prostate gland after removal revealed adenomatous hypertrophy with areas of distinct carcinomatous change.

Unfortunately the early diagnosis of the carcinoma in an hypertrophied prostate is practically impossible.

Motz and Majewsky have laid down the following dictum, that when a patient is with carcinoma of the prostate gland, has neuralgic pains in the lumbar region, in the ischio-crural region, or violent pain in the perineum, the neoplasm has in all probability already become

inoperable. The appearance of hematuria signifies, according to Motz and Suarez, that the ureter or the bladder has been invaded and the cases have become inoperable. As for the frequency of carcinoma of the prostate compared with simple hypertrophy, several authors such as Albarran, Oraison and Young say that 8 to 9% are malignant.

**2. Suprapubic Section Followed by Intestinal Obstruction by a Mass of Worms.**

Mélikiantz relates a case in which suprapubic section was done and a vesical calculus weighing 110 grams was removed. On the following day, the symptoms of intestinal obstruction made their appearance and these became progressively worse for three days, so that peritonitis was suspected. On the fifth day after operation, an enormous number of ascarides were passed, and the patient became promptly better, passing all in all a total of 142 worms.

**3. The International Urological Congress.**

The reports of this Congress were abstracted in the January issue of the JOURNAL.

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**JOURNAL D'UROLOGIE.**

1. History of the Treatment of Calculus Disease. By Prof. Pousson.
2. The Urinary Changes and the Excretion of Uric Acid in a Case of Orthostatic Albuminuria. By F. Widal, A. Lemierre and A. Weill.
3. Urinary Symptoms Induced by Fibromata of the Cervix Uteri. By F. Leguen.
4. Anatomical and Pathological Study of Exstrophy of the Bladder. By A. Hovelacque.
5. A Case of Renal Tuberculosis Associated with Carcinoma. By G. Marion.
6. The Quick Diagnosis of Urinary Tuberculosis by a New Method. By M. Heitz-Boyer.
7. Chronic Painful Nephritis. By F. Marson.
1. History of the Treatment of Calculus Disease.

Pousson, in an exceedingly interesting historical essay, describes the method employed for removal of bladder stone from a period as remote as that of the celebrated physician Sucruta, who lived several centuries before Hippocrates, down to the present time.

**2. The Urinary Changes and the Excretion of Uric Acid in a Case of Orthostatic Albuminuria.**

F. Widal, A. Lemierre and A. Weill, stimulated by the researches of Linossier, Lemoine, and Courcoux who found that the elimination of water, chlorides and nitrogen seemed to be unfavorably affected in cases of orthostatic albuminuria, made a study of the elimination of the output of urea in a case.

In a set of experiments in which the method of Ambard was followed, it was found that the coefficient between the urea in the blood and the urea in the urine was normally somewhat higher than put down by this author. Regarding the normal as being 0.065 to 0.085 instead of 0.042, the elimination of urea in a case of orthostatic albuminuria in the reclining and in the upright position was studied. It was first found that in the absence of albumin, the co-efficient of Ambard when estimated with the patient in the horizontal decubitus remained normal. However, as soon as the upright position was assumed, and albumin appeared in the urine the co-efficient began to rise, attaining 0.12 when one-fifth gram of albumin was present and reaching 0.216 when one gram of albumin per litre was excreted.

In a series of control experiments made upon normal individuals in the erect and reclining position it was found that the co-efficient remained practically the same. The authors conclude that in orthostatic albuminuria, when albumin is present in the urine, the excretion of urea is also diminished.

### 3. Urinary Symptoms Induced by Fibromata of the Cervix Uteri.

F. Legueu thinks that urinary retention is one of the most common forms of vesical disturbance provoked by fibromas of the uterine neck. In speaking of fibroids of the cervix, Sutton mentions that 2 out of 5 cases had retention of urine, in two others there was increased frequency of micturition and in one patient, painful micturition.

Of the 250 cases collected by Di Chiara, 20 had urinary disturbances. In many cases after a period of incomplete retention, complete retention was established. The symptoms of dysuria and painful micturition are less common.

In order to understand the mechanism of the retention, we must bear in mind that the elevation of the bladder towards the umbilical region takes place. The displacement of the viscus is accompanied by an elongation of the urethra, the urinary meatus disappearing, as it were, as it lies in the superior wall of the vagina. The retention then, is brought about by a compression of the elongated urethra.

From an operative standpoint, it is important to extirpate the tumor carefully in order to avoid the ureters, keeping close to the tumor mass in the dissection.

### 4. Anatomical and Pathological Study of Exstrophy of the Bladder.

This paper of A. Hovelacque appears in serial form and will be abstracted when finished.

### 5. A Case of Renal Tuberculosis Associated with Carcinoma.

G. Marion cites an interesting pathological finding, the kidney

having been removed for tuberculous infection and presenting a tuberculous cavity at the lower pole, and a papillary adenoma above, about the size of a large nut. The diagnosis of tuberculosis had been made before operation, having been based on the finding of tubercle bacilli.

#### 6. The Quick Diagnosis of Urinary Tuberculosis by a New Method.

M. Heitz-Boyer describes the technic of a method similar to that of the Wassermann procedure suggested and developed by Debré and Paraf, the purpose of which is to detect small numbers of tubercle bacilli in urine.

In a study of 43 cases, 25 positive and 18 negative reactions were obtained. Of the 25 positive tests, only 2 were not confirmed either by the presence of tubercle bacilli or by inoculation experiment. As for the negative experiments, all proofs were lacking that there was tuberculous process in any of the cases.

#### 7. Chronic Painful Nephritis.

By this term, F. Marsan designates all those cases of chronic nephritis in which the principal and sometimes the only symptom is pain. In his paper, he points out the differential signs between this affection and ordinary chronic nephritis. Although the existence of the so-called essential nephralgias (in which no calculus was found at operation and in which the cure was obtained either by nephrectomy, nephrotomy, or by simple nephrolysis) is pretty well conceded by most authorities of the present time, the opinion as to pathology of the conditions vary considerably. Thus certain authors believe that a partial nephritis is responsible for the clinical manifestations. Others regard the condition as an angioneurosis and still others such as Rovsing are of the opinion that a perinephritis is the essential lesion. Israel recognizes three clinical characteristics that differentiate this type of kidney disease from ordinary medical nephritis. First, the paroxysmal nature of the pain, which, however, does not distinguish it from the colic produced by renal stone; second, the unilateral nature of the symptoms; and third, the absence of albumin.

As for the causes of this condition, infectious toxic and mechanical cause, and dyscrasias may be mentioned. Thus it is believed that after an infection with grippe, typhoid or other infectious diseases more or less chronic lesions in the parenchyma of the kidney may be produced.

Albarran held that even suppurative foci may give rise to connective tissue and finally to sclerosis. Certain poisons, such as chrysophanic acid, and autointoxication are also believed to be contributing causes in some cases. Gout and a tendency to lithiasis must also be mentioned as factors in the etiology. Amongst mechanical causes, traumatism may be mentioned as the most frequent. It is

interesting to note that a floating kidney is very commonly affected.

Studies of the pathology of this condition have shown that perinephritis with a sclerosis of the fatty tissue around the kidney is found in very many cases. When this adhesive condition is localized it is usually found at the upper pole, the kidney being fixed to the diaphragm. The capsule is often adherent to the perinephritic fat, and also to the underlying kidney parenchyma. Indeed, the capsule may be so thick that we may speak of a veritable pachycapsulitis. The kidney may be normal or it may be sclerotic, atrophied or, more frequently, it is considerably enlarged in volume.

Histological examinations have very frequently been made and the usual lesions of nephritis have been found. Certain authors report that the nerve and the ganglionic cell show degenerative and inflammatory changes with intense vascular hyperemia. The most interesting and striking point in the pathology of the kidney is the fact that the lesion is not only unilateral but is also partial.

Usually the onset of the disease is slow and insidious, although in some cases veritable crises of nephritic colic are reported. Pain is usually located in the lumbar region behind and in the iliocostal space. When it appears in front it is usually referred to the hypochondrium and sometimes to the epigastrium. There may be radiation toward the epigastrium and to the abdomen, or the pain may pass downwards along the ureter towards the anus or into the leg. As a rule, motion does not seem to influence the pain, although certain patients complain of exacerbation after prolonged exertion or a long walk. There may be painful paroxysmal attacks simulating renal colic. During these crises, the rigidity of the abdominal wall makes palpation very difficult. But when the resistance of the abdominal wall is overcome, one cannot as a rule feel the kidney.

The urine may show a slight amount of albumen which rarely exceeds 0.25 cgm. per liter. Not infrequently, uric acid crystals, urates or oxalates are found. Microscopic hematuria is very frequent, and even the loss of large amounts of blood has been noticed in more than one-half of the cases. Such bleeding may last three or four days, or even longer, and does not seem to be influenced by rest.

Several clinical types may be distinguished. The perinephritic type which very often follows traumatism and in which there is very frequently a sensation of weight in the lumbar region; second, a congested form in which the lower pole of the tender kidney may be palpated; third, a mixed form in which the latter two are combined; and fourth, the Bright's type where chronic nephritis has preceded, the symptoms of diarrhea, vomiting, anuria, etc., being rather characteristic; fifth, the hematuric form in which congestion must also be presupposed. The diagnosis is at all times difficult for the symptoms



suggest lumbar or abdominal neuralgia, appendicitis, gall-stone colic, etc. When there is hematuria, calculus is usually diagnosed. Inasmuch as tuberculosis, lithiasis, and carcinoma are so frequently accompanied by signs of nephritis, the examination of the urine too leaves us in doubt. A massive perinephritis may lead us to think that we are dealing with a hydronephrosis.

When the symptoms of pain persist, operative interference is indicated. The operative results have been remarkably good. Thus, of 82 cases in the literature, 66 were definitely cured; 8 were temporarily improved, and in only three was there no change. Nephrolysis is recommended by some. Others recommend capsulotomy. Still other surgeons suggest decapsulation and even nephrotomy has been proposed by a goodly number of authorities. Inasmuch as nephrotomy, however, has lead in a number of cases to severe hemorrhage, the author believes that this procedure should be limited to those cases in which an exploratory incision is necessary in order to establish the diagnosis.

### MISCELLANEOUS ABSTRACTS

#### Malignant Papillary Adenoma of the Kidney.

J. B. Squier (*Annals of Surgery*, Nov., 1911), reports the case of a man forty-three years of age who, while lifting a heavy weight, was seized with severe pain in the left inguinal region, radiating to the left lumbar region. Hematuria was present for one week. He was free from symptoms for thirteen months when on lifting a weight the hematuria returned and lasted for six days. Physical examination and cystoscopy were negative. After a month's observation hematuria returned and the left kidney was removed through a lumbar incision. About the upper pole of the kidney were firm adhesions. On section the kidney showed a cyst at the upper pole, the cyst cavity was filled with a yellowish granular material. Section of the cyst wall showed papillary malignant adenoma which was also invading the parenchyma of the kidney.

#### Suprapubic Drainage Tube.

A. H. Peacock (*J. A. M. A.*, Jan. 27, 1912), describes a tube for suprapubic drainage in cases of obstruction of the prostatic urethra when prostatectomy is refused. The tube is inserted through a brass plate fitting the abdominal surface over the bladder and held in place by tapes or elastics. The outer projecting portion of the tube is connected by a rubber tube to a bag, bottle, or other receptacle. The employment of this device cannot be compared, he says, in its results with a prostatectomy, but every surgeon meets with cases in which it can be resorted to. The suprapubic cystotomy required can easily be done under local anesthesia.

## SOCIETY PROCEEDINGS

### GERMAN UROLOGICAL CONGRESS

HELD IN VIENNA, SEPTEMBER 19, 1911.

#### THE RESULTS OF NEPHRECTOMY FOR RENAL TUBERCULOSIS.

*J. Israel* reports the remote results of nephrectomy for renal tuberculosis, basing the conclusions on a review of 1023 cases taken from the literature and on 170 personal observations.

(This paper published in *Folio Urologica* Sept. 1911, was abstracted in the *JOURNAL*, December, 1911.)

*Casper* (Berlin) conceded that the remote results of nephrectomy for tuberculosis of the kidney were, in the main, good. He wished to call particular attention to the importance of recognizing bilateral renal involvement. The data obtained by ureteral-catheterization must be supplemented in all cases by the inoculation of guinea pigs if we wish to avoid error. The presence of pus alone in the specimens obtained from the supposedly intact kidney must not necessarily be taken as an indication of the involvement of that organ; for a simple pyelitis or pyelonephritis may be the cause of the suppurative process. Absolutely clear and apparently normal urine may be found to contain tubercle bacilli if guinea pigs are inoculated. *Casper* concludes that whenever there is the slightest suspicion of disease of the second kidney, animal inoculation should be made to exclude tuberculosis.

*Asakura* (Tokio) says that his results were as follows: In 70 cases the mortality was 12.8%; 25 cases were improved (35.7%); 36 cases were cured, (51.4%).

*Mirabeau* (Munich) said that he had operated on 26 cases himself and had observed some 30 cases in all. In none of his own cases did the patient succumb after the operation, and he was very well satisfied with the result so far as the kidney was concerned. He was inclined to believe that the functional tests were of very little value; but he was under the impression that a blood pressure of over 130 mm. is indicative of renal inadequacy. As regards the operation it was hardly necessary to remove the diseased ureter, and he, himself had not seen a single instance of tuberculous infection of the operative wound. The healing of bladder did not appear to him to be complete in most cases and in only four out of 30, did a complete cure take place. Not only do tuberculous changes remain but a discouraging complication is the tendency to infection with the colon bacillus and the permanency of the turbidity of the urine.

*Oppenheimer* (Frankfort) cited an interesting case of a woman thirty years of age whose bladder capacity was so diminished that cystoscopy without anesthesia was impossible. Within a very short time after nephrectomy the bladder symptoms disappeared and tubercle bacilli became absent. The extirpated kidney was found converted into a hydronephrotic sac and the ureter was practically completely

obliterated in the upper part. It seems hard to understand why the removal of a kidney which was practically segregated from the bladder by obliteration of the ureter should be followed by such a rapid disappearance of the vesical symptoms.

*Hock* (Prague) deplored our inability to take a definite prognosis in renal tuberculosis even after nephrectomy. In his experience even favorable cases may within a short time, succumb to a pulmonary tuberculosis. He called attention to the fact that the presence of tubercle bacilli in specimens obtained by ureteral catheterization, was not absolutely conclusive of renal tuberculosis, since it has been shown by *Lüdke* and *Storm* that patients with pulmonary tuberculosis may frequently excrete tubercle bacilli through the kidney.

*Stein* (Stuttgart) was of the opinion that infection of the wound occurred rather frequently. He was accustomed to treat the bladder with injections of guaiacol-carbonate and iodoform in oil, employing also systematic tuberculin cures. These tuberculin treatments must not be underestimated since some remarkable results may occur after its use.

*C. Schneider* (Wiesbaden) says that he was wont to examine the urine of infected cases in which other bacilli were present with the antiformin method. After allowing the antiformin to act, the mixture is centrifugalized, washed with sterile salt solution and the sediment is injected into a guinea pig.

*H. Wossidlo* (Berlin) in comparing the results of the local treatment of the bladder with iodoform guaiacol sublimate and carbolic acid, with those obtained from the tuberculin treatment, expressed the view that the latter seemed to be far more effectual. Where the carbolic acid treatment of *Rovsing* is well borne, a striking diminution of frequency of urination and pain are observed.

*A. von Frisch* (Vienna) reported on 100 nephrectomies performed from 1903 to 1911. In all of the cases there was a primary deuteropathic renal tuberculosis. There was a total mortality of 10%, the results having improved considerably so that the mortality of 14% in the first 50 cases was reduced to 6% in the last fifty. The immediate cause of death were the following:

Acute nephritis, peritonitis, post-operative hemorrhage on the thirteenth day, heart-failure, peritonitis with ileus, two cases of pneumonia, generalized miliary tuberculosis and thrombosis of the renal vein of the other side; except for the first case mentioned, in which there was an acute nephritis, there were no deaths due to the renal inadequacy of the other side. There were nine remote deaths 10% due to the following:

1. Meningitis (tubercular) after 3 years.
2. Tuberculosis of the Lung and Intestines after four years.
3. Generalized tuberculosis after one year.

4. Generalized tuberculosis after three years.
5. Tuberculous peritonitis after one year.
6. Tuberculosis (the organs involved not being known) after one year.
7. General tuberculosis after two years.
8. Tuberculosis of the second kidney after five years.
9. Generalized tuberculosis after seven years.

All of the cured cases even though the second kidney was not intact showed very remarkable improvement in marked increase of the body-weight.

*V. Blum* (Vienna) in speaking of the rôle of tubercular meningitis as a complication of renal tuberculosis said that the observations made in the clinic of von Frisch were very similar to those mentioned by Israel who claimed this complication as occurring in 12% of the cases. Four of the cases not operated upon and two of the operated cases developed tuberculous meningitis in the course of time, a rather remarkable circumstance in view of the fact that tuberculous meningitis is so rare in adults.

In reviewing the autopsies between the years 1901 and 1910 in the Wiener Allgemeines Krankenhaus, Miller found that renal tuberculosis seems to be associated with a distinct predilection for final involvement of the meninges.

*Reitter* (Vienna) called attention to the importance of making a special study of the reasons that predispose the second kidney to a tuberculous infection even after the first one has been removed. All those factors that influence the organ so that it becomes a *locus minoris resistentiae* for the tubercle bacillus are worthy of careful investigation. Therapeutic and prophylactic measures in the after treatment therefore should be directed toward preserving the kidney from future invasion.

*Zuckerkandl* (Vienna) in reviewing 104 cases of nephrectomy for renal tuberculosis that came under his observation up to the year 1910, called attention to a rather high mortality of 19.2% and offered as an explanation the fact that most of these cases were treated years ago when our diagnostic and operative procedures had not as yet been thoroughly developed. Thus the mortality has become lower from year to year, there being but three deaths in the last 85 cases, and, of the last 50 operations only one fatality occurred. Only 7 of the 20 deaths could be ascribed to the operation; 8 patients died during the first year making a total of 15; and 5 fatalities are recorded between the second and fifth years. Therefore, of 20 deaths, three-quarters belong to the first year, and only one-quarter to the subsequent year.

Israel's observations are similar, for he records that most deaths occurred during the first two years following the operation.

So it may be said that the least resistant of those patients sur-

viving operation succumb either to a tuberculous infection of the lung or of tuberculous meningitis or to a miliary process during the first year.

Reviewing the subsequent histories of the 84 patients who survived, it is found that 45 of them (43.2%) could be regarded as perfectly cured; for they had neither subjective nor objective symptoms of any sort, the urine being clear and free from all pathological elements, the patients being able to carry out their usual work without trouble.

The cases that could be designated as improved, presented for the most part varying degrees of bladder involvement, ulcerative cystitis or other genital complications. Although the general condition of these cases often is good, the urine shows evidences of local trouble. Some of them have hematuria, others pyuria. In such patients the tuberculous process cannot be considered abolished.

As for the vesical tuberculosis, the advanced infection of the bladder can heal only in the *very rarest* of instances.

*Israel* (Berlin) pointed out that too much reliance must not be placed on the use of tuberculin. Regarding the so-called healing of tuberculosis of the urinary tract when the diagnosis of its occurrence is based upon the absence of tubercle bacilli in the urine, *Israel* was emphatic in his belief that a closure of the communication in the urinary passage is often responsible for the absence of tubercle bacilli in the urine. Just as an obliteration of the ureter can occur, giving a condition that simulates a cure (the urine being negative even after the inoculation of guinea-pigs), so also can complete segregation of tuberculous cavities by reason of the closure of the communication with the calyx occur. This however cannot be considered as true healing, for a closed focus is always a menace to the patient, and may at any time disseminate the tuberculous process throughout the organism.

As for a preliminary trial with the tuberculin treatment *Israel* expressed himself as being opposed to such a method. Procrastination could surely only do harm, immediate operative interference being indicated as soon as unilateral tuberculosis is diagnosticated.

*Wildbolz* (Berne) cited the observation of certain Swiss physicians who had found that acute exacerbations could occur after the treatment with tuberculin even resulting in uremia. He himself had never seen infection of the wound with tuberculosis after operation. He too found (what was in accord with the opinion of *Zuckerandl*) that the prognosis is bad in those cases where tuberculosis elsewhere in the body exists. In his own series of 76 healed cases, only 8 had manifest tubercular lesions elsewhere in the body at the time of operation.

#### RENAL TUBERCULOSIS

*Report of Asakura* (Tokio). *Asakura* emphasizes the value of cystoscopy and particularly, of the indigo-carmin test in the diag-

nosis of renal involvement. Thus the diseased ureter excretes the blue color tardily, irregularly, arrhythmically and in a less concentrated form. Whenever possible, the synchronous, bilateral, ureteral catheterization is carried out, the urine being examined chemically and bacteriologically. When catheterization is not feasible, then chromocystoscopy must be relied upon. Sometimes two or three examinations may be necessary, but then definite opinion can usually be formed. In the author's 70 cases, not a single mistake in diagnosis was made.

The extensive extirpation of the ureter is not necessary, for the stump does not seem to cause any trouble. The catheterization of the healthy ureter too does not seem to produce any deleterious effect.

Nephrectomy is contra-indicated even in unilateral tuberculosis when extensive tuberculous process elsewhere or in the osseous system exists.

The age of the author's cases varied from 16 to 55 years, 60 per cent. being between the ages of 21 and 30, about 24 per cent. between the ages of 31 and 40. There were 58 males and 12 females.

As for mortality, the percentage of direct deaths was 5.7 per cent. indirect deaths 7.1%, a total mortality of 12.8%. 25 cases were improved (35.7%) and 36 cases were healed (51.1%). The author designates as direct mortality those deaths occurring within 14 days after operation, and as indirect mortality when exitus occurred no earlier than the end of the first month, being then not due to the operation itself.

Improved cases are those that were freed of their vesical symptoms, or at least, who were distinctly alleviated, although the patients could not be regarded as being absolutely fit for work, inasmuch as the bladder still required treatment.

By cure, the author means the condition in which all symptoms had disappeared and the patient considered himself healthy and able to work, the urine being free from tubercle bacilli.

The author believes that his results differ materially from those obtained by Israel, Kümmel and others, expressing the view that a cure in 51.4%, with marked amelioration of the condition in 25.7%, was certainly a most gratifying therapeutic result.

#### IMMEDIATE AND REMOTE RESULTS OF 57 NEPHRECTOMIES FOR RENAL TUBERCULOSIS

*Report of A. Boeckel (Nancy).* A. Boeckel gives a detailed account of the immediate and remote results of nephrectomy, believing them to be rather reliable, inasmuch as the history of the patients could be followed up to a very recent date.

The right kidney was involved 28 times, the left 29 times. The nephrectomy was transperitoneal in but one case, the usual lumbar incisions having been employed in 56 cases. The subcapsular method

was found necessary in 15 cases. According to the author's chief, Prof. André, the total extirpation of the ureter is a dangerous procedure and not necessary.

As for the immediate results there were 55 recoveries and 2 deaths. However, none of these deaths can be ascribed to the operation *per se*. One of the patients died of sepsis due to an infusion of salt solution, the other patient succumbing some six weeks after the operation to a generalized tuberculosis.

Except for a passing oliguria, no marked change in the quantity of urine excreted could be noticed. The quantity became normal very soon after the operation, in others polyuria set in at a later date.

As for the wound, complete healing took place as follows: in 15 cases, it occurred in 14 days to 3 months; in 12 cases, 3 to 6 months; in 11 cases, from 6 to 9 months; in 3 cases, from 9 to 12 months; and in 3 cases, the healing took more than a year. Four of the patients died after 6 weeks,  $2\frac{1}{2}$  months, 6 months and 7 months, the fistulae being not closed. Good results were obtained from the use of Beck's bismuth paste, the injection having been successful in 6 out of 7 patients. The late mortality was 15.78 per cent. (9 cases).

Of the four cases that were but temporarily improved, one remained comparatively well for  $3\frac{1}{2}$  years, then developing cold abscesses and tuberculosis of the other kidney; the 3 others presented sufficient evidence to warrant the assumption that the second kidney was also involved.

As for the 41 cases that were either completely cured or very much improved, the reporter investigated their general condition, the state of the bladder, the urine, the condition of the remaining kidney, the integrity of the genital system and of the lung. All the cases gained very much in weight, the increase varying from 5 to 20 kilograms.

Although marked vesical symptoms were the rule before the operation, the pain on micturition disappeared completely in 31 cases, being almost completely dissipated in 8 but hardly alleviated in 2. The state of increased frequency was restored to normal in 18 of the cases, there being positive improvement in 17, moderate improvement in 6.

The urine became perfectly clear in 24 out of 41 cases, the change however, being slow, in 3 cases extending over a period of one and a half years.

As far as the secretory function of the remaining kidney is concerned practically normal findings were the rule. The bladder urine, however, in 9 of the cases, gave a positive result when inoculated into animals.

This is to be explained either by the presence of a vesical lesion, or by the fact that some of these were but recently operated upon.

The results may be summarized as follows: 2 operative deaths, 9

late deaths, all cases temporarily improved and 41 patients cured or very much improved.

#### A RAPID METHOD OF DETERMINING THE PRESENCE OF TUBERCLE BACILLI

*A. Bloch*, deploring the fact that the usual subcutaneous or intra-peritoneal inoculation of guinea-pig with material containing, or supposed to contain, tubercle bacilli, requires at least six weeks for the completion of the experiment, proposed (in 1907), injecting into inguinal nodes that had been previously traumatized so as to produce local predisposition. This method often failed because of the suppurative process produced by the presence of other bacteria. More recently the author succeeded in overcoming this obstacle by previous treatment with a 4 per cent. solution of antiformin.

The necessity for histological examination of the extirpated nodes may be obviated if we examine them after maceration with a 15 to 20 per cent. antiformin solution until a homogeneous milky fluid results which can be centrifuged. In spreads made from such a preparation tubercle bacilli can be easily found.

In view of the fact that in rare instances the examination of an inguinal node may be negative, and tuberculosis nevertheless develop from 6 to 10 weeks later in the pig, it is always best to keep the animal alive after the removal of the gland so as to verify or disprove a negative result.

#### THE DETECTION OF SMALL NUMBERS OF TUBERCLE BACILLI WITH FILTRATE AGGRESSINS

According to *P. Asch*, it is well known that certain bacteria produce products of metabolism that favor the development of the specific infectious process. Although some authorities contend that special products of chemical change enhance the virulence of infection, others believe that the ordinary bacterial poisons exert the favoring influence.

The substances under consideration are known as aggressins. It was demonstrated by *E. Levy* and his pupils that these bodies are not only elaborated in the human tissues and exudate, but also in bullion cultures of bacteria, whence they may be filtered or separated from the bacterial bodies. Using such filtrates they were able to show that non-fatal doses of bacteria could be made to become fatal doses by the addition of the filtrate. The effect of the aggressin is believed to depend upon an inhibition of phagocytosis.

Experiments were made with filtrates of tubercle bacilli that were grown in glycerine bullion media for six to eight weeks passed through a Chamberlain filter and then were preserved in  $\frac{1}{2}$  per cent. carbolic acid solution. Such filtrate was injected with sputum or urine sediment containing a very minute number of tubercle bacilli into the peritoneal cavity of guinea-pig with a positive result in 75 per cent. of the experiments, whereas all the control tests were negative.



The animals were usually killed when, by palpation, a distinct infiltration could be detected at the site of injection. On the second or third day, the abdominal muscles begin to show some induration; and on the fourth day, quite a pronounced exudate is already present. After the first week a caseous focus develops, and, in animals that show no local lesion in 10 days, a general miliary tuberculosis of the abdominal organs usually develops in 12 to 18 days. The tubercle bacilli can be demonstrated easiest by removing a portion of the tuberculous abscess wall, crushing it between two slides, and then staining and examining.

Neither the tuberculin Alt nor the tuberculin Denys gave the satisfactory results obtained by the filtrate aggressins.

#### TUBERCULIN TREATMENT OF URO-GENITAL TUBERCULOSIS.

*R. Bachrach* believes that the outlook for a favorable result in the production of spontaneous healing in uro-genital tuberculosis is rather unfavorable. Nevertheless the tuberculin method was given a trial in the clinic of Prof. Zuckerhandl.

The results justify the following conclusions: (1) Operable renal tuberculosis is not a field for the application of the tuberculin therapy. (2) Early cases, namely those in which tubercle bacilli are found without there being any suppurative process, may be regarded as suitable for tuberculin until the indication for nephrectomy can be set. (3) Where a nephrectomy has been done and there are still other foci in the uro-genital tract, the method is to be recommended. (4) The action of tuberculin manifests itself in an improvement of the general condition and increased body-weight. (5) The condition of the local lesions do not appear to be ameliorated. (6) The tuberculin treatment should be carried out in such a manner that no reaction is produced. (7) The inoperable cases of renal tuberculosis are not affected by the tuberculin therapy, but in lieu of other therapeutic means, tuberculin may be tried.

#### ANURIA IN A CASE OF HORSE-SHOE KIDNEY.

*A. von Frisch* says that the records of previously reported cases of fused kidney do not reveal a single instance in which anuria gave the indication for operative interference. The author cites, in detail, the history of his case in which the diagnosis of incarcerated calculus was made. On attempting exposure of the right kidney, a fused condition of the two organs was found, and because of the hydronephrotic condition of the right pelvis, this was drained. More than a month later, after symptoms of renal colic referable to the left side, a small urate stone was passed. Although the radiograms taken before operation were interpreted as being negative a careful study after the diagnosis of horse-shoe kidney had been made, showed that a very faint shadow, very close to the vertebral column could be detected.

The author calls attention to this position of shadows due to calculus in the pelvis as characteristic of stone in horse-shoe kidney.

SHOULD HYPERNEPHROMAS BE REGARDED AS MALIGNANT TUMORS?

*J. Fabricius* discusses the question as to whether any benign instances of this condition exist, in view of the fact that 3 out of his 6 cases consulted him because of the presence of metastases, the primary renal tumor having given no symptoms. In reviewing the literature, he found that C. Albrecht, in examining the records of the Clinic of Hocheneg's, reports no case of survival after six and a half years. His material consisted of 24 patients. The author concludes that the diseased tumors are very malignant, even though isolated instances such as those published by Krönlein and Clairmont (in which metastases appeared after 10 and 11 years respectively) are recorded in the literature.

UNILATERAL RENAL DISEASE FOLLOWING INJURY.

*G. Thelen* believes that the investigation of the possibility of remote disease of the kidney following trauma, promises fruitful results since, on the one hand, ureteral catheterization gives very definite data, and, on the other hand, injuries are apt to affect only one organ. Leaving the severer lesion of the kidney out of consideration, the most important as well as the most frequent are the subcutaneous tears and contusions of the renal parenchyma, pelvis and capsule. Pain and hemorrhage are the usual and most important symptoms. The bleeding occurs in the renal pelvis, in the urinary channel, between the kidney and the capsule or in the peritoneal cavity, according to the type of the injury. It may be detected only by the microscope or it may be altogether absent. As for the nephritis, that may follow injuries to the kidney. The diffuse type is very rare, and it is more usual to observe the unilateral traumatic nephritis which, although accompanied by the secretion of albumin and casts, may be unattended by any of the clinical manifestations of nephritis. Such a one-sided process may follow injury either because the bacteria passing through a *locus minoris resistentiæ*, evoke an inflammatory process by virtue of their toxins, or because infarcts are produced by the injury, leading to the exclusion of many tubules and to the obstruction of glomeruli. The case of unilateral circumscribed traumatic nephritis reported by Curschmann, jr., in which the process was diagnosed by ureteral catheterization seems to be an authentic and reliable one. The author had occasion to observe two cases of nephritis following trauma. In one of these, the injured kidney was removed three months after the subsidence of the immediate symptoms because of copious hematuria. The pathological examination showed the typical picture of nephritis. In the second case, the diagnosis was established by ureteral catheterization two months after the injury.

A more common sequela is renal infection, either in the form of a suppurative nephritis, pyonephrosis or pyelitis. It seems that either a hematogenous infection by the indirect route or a direct modus by reason of the action of urinary and bloody extravasation may be responsible. The author has records of four cases of unilateral pyelitis following trauma.

An interesting observation was one of the formation of a urinary cyst following tear of the renal pelvis.

As for floating kidney, this seems to be a rather rare result of injury. As a rule, the urinary nephritic processes heal promptly and spontaneously and even if the lesion persists for a long time the possibility of infection of the second kidney seems to be remote.

#### THE PARTICIPATION OF THE URETER AND RENAL PELVIS IN DISEASES OF THE FEMALE SEXUAL ORGANS.

*Mirabeau* reports that one of the most important factors in the causation of diseases of the upper urinary tract by lesions of the female sexual organs is the interference with the proper outflow of urine. Thus even the physiological hyperemia during menstruation may cause, in some women, swelling of the mucous membrane of the ureter and typical colicky attacks. Indeed a certain percentage of the symptoms of dysmenorrhea may be referred to trouble in the ureter. Some believe that vomiting in pregnancy, nausea, headaches during the first few months of the child-bearing period may be of uremic nature in a fair proportion of cases. Retention of urine in the renal pelvis would then be the cause. Certain it is, that the pyelitis of pregnancy is in some way connected with the compression of the ureter and the author believes that the obstruction is in the intra-vesical portion of that channel. Having studied quite a large number of cases with the cystoscope in which there were the usual dysmenorrheal symptoms and having very frequently observed abnormalities of the function of the ureter, the author feels justified in drawing the conclusion that the so-called menstrual symptoms are to be attributed to the interference of the outflow of the urine. Although such early changes seemed to be harmless or insignificant, in the course of time dilatation of the renal pelvis and insufficiency of the ureteral muscle takes place. Later on, infection supervenes and the picture of pyelitis, ureteritis, or pyonephrosis results.

#### THE QUESTION OF URETEROSTOMY.

*Kurt Frank* calls attention to the fact that it occasionally becomes necessary to separate the ureters from the bladder in cases of ectopia, tumors of the bladder and prostate, tuberculosis in cases of markedly contracted bladder, and in fistulæ. From his experience in 3 cases, the author concludes that the implantation of ureters into the abdominal wall is the easiest and most satisfactory method.

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## FURTHER EXPERIENCE WITH SOLUTION ALUMINUM ACETATE IN COLON BACILLUS INFECTION OF THE URINARY TRACT.<sup>1</sup>

By IRVIN S. KOLL, M. D., CHICAGO, ILLINOIS.

**S**INCE the presentation of my initial paper on this subject, now seven months ago, it has been my privilege to personally see eight additional colon infections of the urinary tract, and to have communication from my colleagues, who report sixteen cases successfully treated.

Of my eight cases, five were urethritis, all following an acute gonorrhea, the colon, however, obtained in pure culture; two cystitis, and one pyelitis, all pure colon infections.

An average of thirty-one days for all cases was necessary to obtain a sterile urine. In no instance was there any local irritation worth noting.

Of the sixteen cases treated by the various members of the Association, all report favorable results, but some have not given the liquor long enough trial in order to give a sterile urine. These sixteen cases consist of six pyelitis, nine cystitis and one urethritis.

In checking up the twenty-seven cases previously reported, I have been in personal communication with sixteen of the patients. From five of these I have obtained specimen of urine under the most careful aseptic precautions, from which cultures have been made under the supervision of Dr. J. W. Jobling, Director of the Michael Reese Hospital Research Institute, and each of these specimens found to be free from colon bacilli. Unfortunately, the remaining eleven cases are not within my reach.

<sup>1</sup> Read at the Eleventh Annual Meeting of the American Urological Association, New York City, April, 1912.

There have been three recurrences, one cystitis in a man, eighty-four years of age, with a relaxed bladder having from twenty-to fifty c.c. of residual urine. A prompt instillation with the liquor aluminum acetate has on two occasions prevented any further subjective manifestation. Another cystitis recurrence is in a female, twenty-four years old, who has complained of frequency and tenesmus for ten years. After four and one-half weeks of treatment, her urine was sterile, her tenesmus gone. At the time she was first seen her bladder showed a diffuse ulcerative cystitis. Now, eighteen months after her discharge, she returns with the story of a returning of frequency and slight tenesmus. Her urine gives a pure culture of colon bacilli. She is now under a second course of treatment. Urine from both kidneys was sterile. The third recurrence was in the urethra, and may have been a new infection, since there had been recent exposure.

I find, in carefully analyzing my correspondence upon this liquor treatment, that many complain that there is very severe irritation following the instillations into the bladder. Personally, this has been encountered in but two instances, which were promptly controlled by opium suppositories. The following preventive procedures are suggested against such unpleasant encounters: First, the preparation of the liquor is of great importance. The National Formulary should be followed very closely:

Aluminum Sulphate (U. S. P.),.....	300.
Acetic Acid (U. S. P.),.....	300.
Calcium Carbonate, .....	130.
Water, .....	1000.

Dissolve the  $\text{Ca Co}_3$  in the acid mixed with 250 c.c. water, and the aluminum sulphate in 750 c.c. Mix the two solutions and allow the mixture to stand twenty-four hours, agitating occasionally. Pour off the clear solution and filter. The solution contains 7.5 to 8 per cent. of basic aluminum acetate.

After the full strength solution is prepared, I advise diluting each time the liquor is employed, because unless a very carefully distilled water is used the carbonates of the water will throw down a heavy gelatinous precipitate of the aluminum hydroxid, which will leave free acetic acid.

A second suggestion that may be of value is to start with one per cent. in severely inflamed bladders, and in each case

control the irritation with opium suppositories. One thing is absolutely certain: You *cannot* produce any anatomical injury. This point was carefully ascertained before putting my experiments<sup>2</sup> to practical application. I doubt that any drug that has ever been used on the inflamed mucosa of the urethra and bladder had failed to produce some irritation, and in most instances where the colon bacillus has been the offending organism without any definite end results.

This leads to the point of differentiation between a clinical and a bacteriological cure. I am sure that all will agree with me that the point of satisfaction is not reached until the urine culture is sterile. How many urologists have failed to get repeated recurrences in their colon infections of the renal pelves and urinary bladder? I venture to state that all have had such annoying experiences. Many times a case is discharged as cured as soon as the clinical picture has faded, or, at latest, when the leucocytes have practically disappeared from the urine. The bacilluria remains, and as long as it does remain, just so long does that patient run the risk of a recurrence. Many recurrences of cystitis in the same individual will surely produce an involvement higher up, be it hematogenous, lymphogenous, or by direct extension, which latter condition I am beginning to seriously question as being of frequent occurrence. Many recurrences of a pyelitis will almost certainly produce destructive pathology in the kidney parenchyma.

Comparison with the experimental works of many observers gives the liquor aluminum acetate superiority over other drugs in their germicidal and antiseptic properties upon the colon bacillus. The most recent work is that of Clark and Wylie,<sup>3</sup> who found that it requires a two per cent. solution of silver nitrate to destroy a culture of colon bacilli. No one would care to introduce such a strength of the nitrate into the bladder or kidney.

Many urologists claim, and in most instances quite correctly, that it is more the drainage produced by the ureteral catheter than the effect of any drug that relieves the pyelitis, yet I am of the conviction that the most efficient germicide that will produce the least change upon the tissues will materially aid in giving the quickest and best ultimate results.

<sup>2</sup> "Am. J. Urology," Nov., 1911.

<sup>3</sup> Clark and Wylie: J. A. M. A., July 29, 1911.

## AUTHOR'S NEW CASES

SEX.	AGE.	LOCATION OF INFECTION.	LENGTH OF TIME PRODUCE STERILE.	REMARKS.
Male.	38	Anterior urethra.	Five days.	Followed closely on disappearance of gonococci.
Male.	30	"	Forty days.	Bacilli disappeared from discharge in three days.
Male.	22	"	Fifteen days.	Bacilli disappeared from discharge in thirty-six hours.
Male.	25	Anterior and posterior urethra.	Three months.	Urethral fistula following gonorrheal abscess.
Male.	27	" " "	One and one-half months.	Recurrence of reinfection. Two months following previous attack. Urine was sterile when discharged first time.
Female.	29	Left kidney pelvis.	Ten days.	Paraplegia. Chronic diffuse ulcerative cystitis, with complete retention.
Female.	58	Bladder.	Fourteen days.	Spontaneous urination began third day after treatment was started.
Female.	65	Bladder.		Patient left hospital three days after treatment was begun. Marked frequency and tenesmus, which was greatly relieved in twenty-four hours.

## CONTRIBUTED CASE REPORTS

BY WHOM TREATED.	LOCATION OF INFECTION.	RESULTS.	REMARKS.
MacGowan, G.	3 Pyelitis	"Culture still obtained at end of ten and twelve weeks."	All improved beautifully, though colon still present. Vaccines used. Pure culture in each case.
	5 Cystitis	4 still under treatment.	"Only one case pure culture, which grew worse, now better, but not cured with AgNO <sub>3</sub> . Vaccines used in all cases."
Bremmerman, L. W.	3 Pyelitis	Sterile urine in seven weeks.	"These cases responded beautifully following the first two to three treatments, but after that the condition was more difficult to control."
Corbus, B. C.	1 Cystitis	Sterile urine in two months.	"Has some pathology in bladder, probably neoplasm. Unable to cystoscope on account of severe hemorrhages."
Ravogli.	1 Urethritis	Still under treatment.	"Has greatly improved under three weeks' treatment."
Young, W. G.	1 Cystitis	Completely cured.	Infected his bladder with a catheter.
	1 Cystitis	"Sterile urine after three to four instillations."	Recurrence in few days, probably due to involvement in prostate.
Murphy, A. I.	2 Cystitis		One showed improvement, other did not respond; both have passed was into other hands.
Gardner, J. A.	2 Urethritis 1 Cystitis		In all three cases got so much reaction and pain that the treatment given up.
Rawls, R. M.	1 Pyelitis	Five irrigations covering period of five weeks.	Periods between irrigations had to be weekly, on account of difficulty in passing cystoscope. Positive culture obtained at end of five weeks.
Schram, D. L.	1 Cystitis	Sterile urine in three weeks.	First time sterile urine obtained in five days; relapse of cystitis required three weeks more to obtain urine free from the bacilli. Has remained so since.



Permit me to re-sound Dr. Tenney's<sup>4</sup> warning that in persistent or resistant cases of cystitis, due to any organism, look for involvement higher up in the urinary tract.

In view of the fact that in the hands of others, together with my own cases, forty-two patients suffering from colon infections of the urinary tract have been absolutely cured, and that these cures have been bacteriological as well as clinical, may we not accept liquor aluminum acetate as efficient in combating this ever-increasing disturber of the kidneys, bladder and urethra?

31 North State Street.

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### PROGRESS IN THE THERAPY OF GONORRHEA<sup>1</sup>

BY WILHELM KARO, M. D., BERLIN.

**T**HERE is an incalculable number of remedies used in treating gonorrhea, any one of which will be lauded by one therapist and condemned by another. This indicates that the progress in the therapy of this disease is not so much a matter of discovering new medicaments as one of improving our existing methods and technique. In other words the present forms of local application of drugs to the urethra demand reform. Germane to this point I should like to emphasize that the structure of the urethral mucosa favors the growth of the gonococci. The crypts and lacunae of Morgagni are veritable thermostats, and it is with the utmost difficulty that the organisms can be driven from them. Intraurethral injections, by means of any of the syringes commonly employed, afford but little prospect of destroying the bacteria luxuriating in the countless folds of the mucous membrane. When, indeed, injections do cure, it is simply due to the combination in which careful treatment and a catarrh which tends to be self limited afford such an eventuality. But we must remember that frequently injections not only do not abort or improve the disease but actually promote its extension. This is illustrated by the frequency with which injections under pressure convey organisms to the posterior urethra.

The disadvantages of the injection therapy are well expressed by Grave (*Folia Urologica* 1911, Vol. II).

1. Often the patient seems unable, even under careful instruction, to master the use of the syringe. Carelessness with the

<sup>4</sup> Tenney and Chase: Trans. Am. Urol. Assoc., 1911, p. 111.

<sup>1</sup> Translation by Dr. Walter Heimann.

irritants may cause eczema or dermatitis of the external genitalia. Too forcible injections may cause epididymitis, prostatitis and seminal vesiculitis.

2. Circumstances such as traveling, business, home arrangements may make it impossible for the patient to use the syringe carefully. Thus the treatment becomes inexact and irregular. It is also often carried out in the privy where asepsis is impossible.

For these reasons I have abandoned the syringe. Instead I employ soft metal tubes similar to those used for tooth pastes or oil paints. The tips are conical and resemble those of urethral syringes. A screw-cover protects the tip. In these tubes, known as "Tubogonal," are contained the drugs to be used, combined with "Katheterpurin" as an excipient. The management of this device requires less skill than does that of the syringe.

The technique is simple. The glans is grasped between the patient's left thumb and index finger. The tip of the tube is inserted into the meatus and the required quantity of the drug expressed into the urethra. The tube is removed, the meatus compressed by the fingers already mentioned, and the mass now in the urethra gently massaged backward with the right hand. This requires about three minutes. The only preparation necessary is urination and thorough cleansing of glans and prepuce. After the treatment a small compress should cover the meatus to prevent staining of the clothes by the excess of the ointment which exudes from the urethra. The frequency of application depends upon the severity of the case. Its advantages are:—

1. Simplicity and easy mastery of the technique.

2. The gentleness of the influx of the drug prevents all posterior urethral disturbances and their usual complications. Cowperitis and paraurethral abscesses often develop when fatty excipients are used, for fats cause occlusion. This is not the case with catheterpurin, which is soluble in water. On the contrary, this very solubility allows some of the material to remain in the urethra, and thus the drug may work during a longer period than was the case with the old fashioned solutions which were promptly passed out, and thus effective only for a short time. The fear that this form of therapy is not cleansing is groundless, since the micturition preceding the treatment thoroughly washes out the urethra.

3. Patients who have tried both the old and the new methods prefer the latter because of its simple and easy operation, even in

cramped surroundings. This holds true particularly in the case of travelers.

All varieties of drugs may be used and in any concentration, whether they be organic silver salts, antiseptics or astringents. For the past three years none of my patients has been permitted to use the syringe. The results have been constantly satisfactory, the course of disease shorter than usual, and complications very rare.

Although this method is open to further improvements, I am convinced that the urethral syringe is antiquated and may henceforth be dispensed with in the treatment of gonorrhea. Furthermore since the disadvantages of the syringe are now overcome we at last find ourselves in a position to perfect the local therapy of this type of urethritis.

The problem of improving the internal therapy of gonorrhea has presented itself to me along similar lines. Here too the question of finding new drugs seemed less essential than that of determining which of those embraced in the three well-known groups, namely, balsams, internal antiseptics and diuretics, were the best; and in which combination the best were most efficacious. I have been greatly impressed by Ehrlich and his work upon the pharmacodynamic influence of drugs. Through him we know that every living cell possesses a certain point at which it comes under the influence of a given medicament. It is not the case, however, that two substances in working upon a cell do so according to the principle of the summation of effectiveness, so much as by virtue of the action of one being supplemented by that of the other. Along these lines I have combined in capsule form (the Buccosperin capsules) a diuretic, balsam and internal antiseptic. In my choice of the representative drug from each group, my object was the composition which should have the maximum of therapeutic value and a minimum of harmfulness to the patient. Of all the balsams I considered sandalwood oil the worst. My personal experience, confirmed by a study of the literature, convinced me that this substance and its derivatives caused renal pain and albuminuria. More serious adverse effects even are reported. Lesser and Martineck have seen urobilin icterus, and the latter has also observed a serious toxemia accompanied by nephritis and splenic enlargement in a patient who had taken the drug for a long period. Its action seemed to be hemolytic as well as injurious to the parenchyma of the liver. Seifert reports a similar case (*Wurtzburger Abhandlungen* 1908, Vol. IX.).

Copaiba is entirely different from oleum santalini in its physiological and indirect action upon the human being. Personal observation (*Archiv. fur Exp. Pharmakologie* Vol. 46) has taught me that sandalwood oil causes a greater urinary excretion of ammonia salts than does copaiba even when they are administered in identical doses. I devoted much thought to this and concluded that the latter is disintegrated less rapidly in the body than the former. A characteristic qualitative test exists for the ammonia salts present in the urine of patients ingesting the balsams. Nitric and hydrochloric acid cause a flocculent precipitate, soluble in ether or chloroform. This is obviously not albumin. Since the excretion of the copaiba is the slower of the two, it may be assumed that its action is milder and less irritating. Michley (*Charité Annalen* 1910, Vol. 34) explains its mild action by the assumption that copaiba is disintegrated slowly in the patient's body.

Copaiba unfortunately, however, is a gastric irritant and also gives a characteristic odor in the breath. Thus, in order to render this substance serviceable in my capsules I employed a capsule coating insoluble except in the small intestine, the juices of which are alkaline. A series of impeccable experiments established that the capsules were not effected by the acidity of the stomach, nor passed out undissolved in the stools. In this manner all undesirable effects of copaiba were obviated. It was gradually digested in the small gut and slowly excreted by the kidneys. This explains its mild effect.

The diuretic employed in the capsules is the well known folia buchu. The extract was made *in vacuo* and proved better than the ordinary infusions or tinctures. To add an internal antiseptic to the combination in the capsules, small doses of hexamethyln-tetramin and salicylic acid were used, the former being the best drug of this type known to urologists. It is a good uric acid solvent, bactericide and antifermentive as regards ammonia fermentation. In practice this purely empirical compound has more than fulfilled expectations. The capsules are easy to take, do not cause eructations, nausea or other symptoms of gastric irritation. The urine turns red when shaken up with hydrochloric acid, a reaction for copaiba described by me in 1901 (*Archiv. f. exp. Pathol. u. Pharmacol.*) In my experience there have never been any signs of renal irritation. Frankl (*Berl. Klin. Wochschr.*, 13, 1911) corroborates all of the above observations and he further

states that patients who tolerated other internal antigonorrheal therapy poorly, stood these capsules well.

In inflammation of the kidney, bladder and posterior urethra Grave has stated (*Folia Urologica* 1911) that these capsules are most efficacious. He too emphasizes the absence of gastric symptoms. His cases included non-specific as well as gonorrheal diseases of the bladder and kidneys. He always found the action of the capsules prompt.

I, also, find them useful in non-gonorrheal maladies of the urinary passages, chiefly in the cystitis of prostatics, pyelitis, tuberculosis of the bladder and similar diseases. Thus I hope to have directed the attention of colleagues in this field of work to the new possibilities of this form of treatment.

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## POST-OPERATIVE TREATMENT FOLLOWING PROSTATECTOMY

BY LEWIS WINE BREMERMAN, A. M., M. D.

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MUCH has been written upon the relative merits of the various operative procedures for the removal of the prostate. Many statistics have been compiled to prove which is the better, the suprapubic or the perineal route. It is surprising, upon looking over the literature on prostate work, how little has been written regarding the after treatment of prostatectomy, which to my mind is vastly more important than the operative technique. It matters little which operation is performed, if the patient recovers and is relieved of the annoying urinary symptoms. His recovery, in my opinion, depends upon the care and attention given him after the operation.

The post-operative treatment may be divided for convenience into three stages: first, the period immediately following the operation; second, the period of convalescence; and third, the subsequent period of at least six months.

During the first period, that immediately following the operation, the most important elements to be guarded against are shock, hemorrhage, anuria and sepsis.

In considering shock and its prevention, I will be compelled to dwell for a moment upon the preparation of the patient prelimi-

nary to the operation. I will consider the question of anesthesia which, in these old gentlemen upon whom prostatectomy is performed, is of paramount importance. In clean cases, that is, when there has been no existing cystitis either of long or short duration and other things being equal, the operation may be performed at once. If the bladder has been infected, then a week or two of preliminary treatment for the purpose of rendering the field of operation as aseptic as possible is indicated. It is well also to institute constitutional treatment for the purpose of increasing the resistance of the patient.

As little preliminary work as possible should be done upon the patient in the operating room, and everything made ready for the operation before the anesthetic is given, thus shortening the time of the anesthesia, and reducing the possibilities of shock. It is my custom to have the bladder irrigated and filled, and have the skin surface cleansed, just prior to the beginning of the anesthetic, the bladder being filled with formalin in solution of 1:4000, and the skin surface painted with tincture of iodine.

It has been my practice in the majority upon whom I have operated to use nitrous oxide gas and oxygen as an anesthetic. This is safe, rapid, and reduces to a minimum the chances of shock and anuria, and also, as may occur in ether anesthesia, prevents to a great extent the dangers of pneumonia. I feel that one of the exciting causes of shock, particularly in the aged, is the persistent nausea, vomiting and straining which follows ether or chloroform anesthesia, and that this is entirely eradicated by the use of gas and oxygen. The patient fully recovers consciousness before leaving the operating room and is free from the annoying untoward conditions which are so greatly feared when other anesthetics are employed. I am compelled, however, to call attention to one class of patients where gas and oxygen anesthesia is contra-indicated. If the patient has a myocarditis, then ether is the safest to employ. Gas and oxygen anesthesia is not an easy one to administer, and for the best results it must be left in the hands of the expert. It is impossible for the interne, or one not familiar with this form of anesthetic, to know the proper mixtures, and to readily recognize untoward conditions.

My anesthetist has given many thousands of gas and oxygen anesthetics, and I must admit I employ it in cases where ordinarily this anesthetic would be contra-indicated. Even when

ether or chloroform is used I feel that in these old men it is the safest plan to employ an anesthetist who has had much experience, for the patient should be kept under the influence of the anesthetic by the use of the smallest possible quantity.

Immediately following the operation and continuing for twenty-four hours, hot salines per rectum by the drop method, are employed. This procedure is carried out in every case, for it diminishes the likelihood of post-operative shock and anuria. Strychnine is administered in conjunction with the saline for the first twenty-four hours, if it is indicated.

After the prostate has been removed, a 32 Fr. sound, or one as large as the caliber of the urethra will stand, is passed into the bladder, a meatotomy being performed if necessary to allow the passage of the instrument. The region around the internal urinary meatus is carefully examined, and, if there are any fragments of tissue, these are removed. The bladder is then irrigated with hot formalin solution, 1-4000, which will, as a rule, stop the bleeding. Only occasionally is it necessary to pack the bladder to control the hemorrhage.

A drainage tube of 27 or 28 Fr. caliber is inserted, the tube having thick walls that do not tend to collapse. The bladder is closed snugly around the tube, and the tissues are brought together with as few sutures as possible, to reduce the chances of infection. The tube is brought out of the upper angle of the skin incision. The bladder must be drained, as the process of drainage is the most important phase in the after-treatment of the case. The success of the operation depends almost entirely upon good drainage, the latter minimizing the danger of shock, anuria, sepsis, and hemorrhage. Drainage in these cases has been the bugbear of operators since prostatectomy has been classed among scientific, justifiable operations. Many varieties of apparatus have been devised. Most of these have been discarded as useless. Some operators use nothing but a tube which drains by gravity; others recommend the use of a tube of large caliber, through which, if the drainage is not perfect, blood clots may be removed, by the nurse in charge, with a long pair of forceps. Such a method, as one can readily see, increases the chances of infection.

The author has devised a drainage apparatus which carries out all of its functions automatically and with precision.

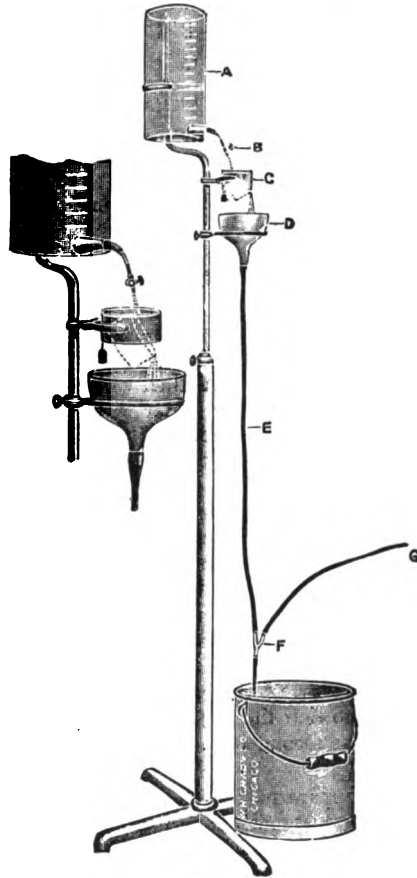
After the patient is placed in bed, the tubing of the apparatus

here illustrated is connected with the drainage tube in the bladder. The Y-shaped tube F must be below the level of the patient lying in bed; the reservoir A is filled with water, and the stop-cock turned so that the water will drop slowly into cup C, which, when full, tilts and empties itself into the funnel D. The water running down the long tube E into the Y-shaped tube F causes sufficient suction to start the process of siphonage of the fluid in the bladder. This siphonage may be regulated to occur at any given interval by arranging the flow of water from the stop-cock B which flows into the cup.

I am sure that those who are doing much bladder work have met with the same difficulties in perfect drainage, as I have met with in my work, and that if they will take the occasion to use the apparatus which I have devised they will be satisfied with the results.

By perfect drainage the patient is made comfortable, the bladder does not become distended, and clots cannot form. Furthermore the dressings do not become saturated, the wound healing is not interfered with, and the chances of infection of the prevesical space are diminished. I have used this apparatus in a large number of cases and feel that my satisfactory results have been due almost entirely to perfect drainage.

I might call attention to another important feature of the drainage apparatus described; with its use one can readily tell how much urine the kidneys are excreting. This is accomplished





by measuring the fluid in the reservoir, also urine, blood and water in the receptacle under the bed, subtracting this former amount from the latter, the difference being the urine and blood. This knowledge is very essential, as it is an aid to the estimation of the functional capacity of the kidneys.

I might suggest a precautionary step to be taken in regard to the placing of the drainage tube in the bladder. Care must be taken that the end of the tube does not come in contact with the floor of the bladder.

Two cases of anuria have occurred in my practice. In these the condition was reflexly produced by irritation of the tube in the bladder, the removal of the tube becoming necessary in both cases. Shortly afterwards there was a copious flow of urine. There had been no urine in the bladder upon removal of the tube, and the tube was not blocked in any way.

It has been my practice for several years to endeavor by the recognized tests to estimate the functional activity of the kidney, not only in cases where surgical work is to be done upon the kidney, but whenever it is necessary to operate upon any portion of the urinary tract. It is very important in operations upon the prostate, particularly where the condition has been of long standing, and there is danger of kidney complications.

During the first twenty-four hours the drainage apparatus is so set that it will empty the bladder completely every five minutes, during the second twenty-four hours every ten minutes, and thereafter every fifteen minutes. The apparatus will carry out its function no matter what the position of the patient, whether he be in the dorsal position, reclining in bed, or sitting up in a chair. The apparatus is employed for four to six days, when the tube is withdrawn. During the first twenty-four hours the patient is kept as quiet as possible; during the second twenty-four hours a metal catheter 28 Fr. is passed *per urethram* into the bladder and the bladder irrigated with formalin solution 1:4000. The out-flow of solution is through the drainage tube. This procedure is carried out daily for three weeks. During the third twenty-four hours the patient is allowed to sit up in bed and on the 4th day he is allowed to sit up in a chair. He is encouraged to sit up daily and walk about as much as he can; usually within three weeks the patient may leave the hospital.

From the time the patient leaves the hospital until at least six months have elapsed he should be kept under observation.

This sometimes is difficult, owing to the fact that the patient comes to us from a distance. However, treatment should be continued by his physician.

I suggest irrigation of the bladder at least once a week for several months, and oftener if there is evidence of pus in the urine. The urethra should be dilated occasionally. Following the irrigation or dilatation five or ten c. c. of a 2% solution of nargol is injected into the bladder. The patient is requested to retain this for a period of 2 hours if possible. This procedure lessens the possibility of urethral fever following instrumental manipulation. After six months I insist upon a cystoscopic examination, and if the bladder is, at this time, normal in appearance and the patient in a comfortable condition, he is discharged. Keeping the patient under observation is very important, as complications are so apt to occur. We are familiar with the frequency of the formation of vesical calculus following operation, especially in septic cases. Careful treatment will prevent all these untoward sequelae.

So many patients come under my observation as cured, suffering with symptoms almost as annoying as prior to the operation. Pain, frequency of urination, both by day and night, are complained of, as well as other symptoms of severe cystitis. If proper care had been exercised in the treatment of such cases, excellent results would often have been obtained. It seems that some surgeons are too anxious to discharge their patients soon after operation.

I might suggest that if a well outlined course of after-treatment be instituted along the lines indicated above, the result will be surprising. The patient will be more comfortable during the first few weeks following operation, and when he is allowed to depart, he will do so as nearly recovered as it is possible for these old men.

## A CASE OF AUTOINOCULATION OF CHANCROID

By WALTER S. REYNOLDS, M.D., New York.

Late Chief of Clinic and Instructor in Genito-urinary Diseases, College of Physicians and Surgeons (Columbia University); formerly Professor of Venereal Diseases, Medical Dep't., University of Vermont.

**A** FACT well recognized in the clinical differential diagnosis between a chancre and chancroid is that, while the chancroid is autoinoculable, the chancre cannot be reproduced in the same individual. This statement does not of course apply to experimental autoinoculation of the chancre. Even experimentally autoinoculation of the chancre, as shown by Queyrat, while it is possible within ten days or so after the appearance of the lesion, after that time it is not possible to reproduce the lesion in an infected individual.

Examples of autoinoculation of chancroids are often seen in lesions on the genitals; an exact reproduction of the original lesion being frequently found where opposed surfaces have been allowed to remain in contact with the lesion. But lesions transferred to other parts more or less remote from the site of the original lesion, especially on cutaneous surfaces, are rare. This might seem strange at first thought when we consider how careless most men are — especially among dispensary patients, where chancroids are more frequently seen than in private practice — but this is to be explained by the fact that the skin being more resistant to infection than the mucous surfaces, autoinoculation is seldom seen in such situations.

The man was a patient at the Vanderbilt Clinic and on admission gave the following history: he had had two attacks of urethritis, the last some year or more previously. Several small pustules were first noticed about the preputial opening about three weeks before coming to the clinic, developing a short time after exposure. They soon became ulcerative lesions, giving rise to a considerable amount of discharge. About a week after the penile lesions were discovered an ulcer developed on the index finger of the right hand. As he was employed as a truckman his hands were liable to be cut and bruised but he did not recall having injured the finger previous to the development of the ulcer. The examination disclosed a typical chancroid at the preputial opening and a similar lesion on the index finger as shown in the illustration.

66 West 71st Street.



A Case of Autoinoculation of Chancroid

## UNILATERAL RENAL HEMATURIA

BY K. H. AYNESWORTH, M. D., WACO, TEXAS.

**A** BRIEF discussion of this subject is necessary before reporting the case below. It is the experience of almost every practitioner to see, occasionally, patients suffering from hematuria which can not be accounted for upon the usual grounds. These cases are generally symptomless subjectively, and were it not for the discolored urine nothing would be known of it by the patients themselves. I have seen five such patients and, while I examined every one cystoscopically and determined accurately the origin of the hemorrhage from one ureter, only one was treated surgically, the others had a cessation of the bleeding spontaneously.

A review of the possible causes of hemorrhage in the urinary tract above the bladder may be permitted. The pathological conditions which are generally given are tuberculosis of the kidney, new growths of the kidney, calculi, crystals (not stones), nephritis, injuries, infarcts, lardaceous disease, the action of various drugs, certain constitutional states and "essential hematuria," etc.

The case, herewith reported, is rather unusual in that it was due to a form of hemorrhagic nephritis involving one kidney only. Nephrectomy gave permanent relief, which has justified the very radical procedure adopted.

Mrs. J. J., 48 yrs. old, weight 94 lbs., married.

Family history: negative.

Personal history: usual diseases of childhood; typhoid fever during childhood; five years ago had an attack of acute congestion of the kidneys, co-incident with suppression of the urine lasting nearly three days. Since then she has had no noticeable trouble with the kidneys; has not been in good health for 16 years. She is a small dried up type of woman. Mother of a large family of children.

On October 10, 1910, patient first noticed that she passed a dark colored urine; on the 11th the urine was bright red; ever since then the urine has been bloody, except for two days, only—Oct. 24 and Oct. 31. Often during this time she saw a dark bloody sediment when the urine was allowed to stand a while; Nov. 4 noticed clots. At no time has there been pain or dis-

comfort over bladder or kidneys, but there has been at irregular intervals some tenderness on deep pressure over the left kidney, but no difference in the size of the kidneys could be determined; the kidneys were in normal position. There was never a symptom of local bladder irritation; she passed urine, however, often due to a sense of slight pressure in the bladder described as a feeling of fullness. Appetite has not been good for a long time; has gradually grown weaker for years, but rapidly since the appearance of blood in the urine; heart and lungs are normal. She is very anemic; hemoglobin 60%.

I saw her on Oct. 27 at her home in the country and cystoscoped the bladder; the bladder was normal so far as I could tell, but as she was on a bed with no way of securing the advantages of position, I could not be absolutely positive as to all parts of the walls; however, I could see the base quite distinctly. From the left ureter blood was seen spouting with every jet of urine; it was so red that it appeared as if it were almost pure blood; in the base of the bladder, I could see numerous small clots of blood which were at first mistaken for small ulcerations in the folds of the bladder; the right ureter was normal and from it clear urine came; the trigone and interureteral bar were normal; the ureteral openings were normal; in fact, the bladder examination was negative as to local findings, except that profuse bleeding was seen coming from the left ureter. Oct. 30 von Pirquet's test for tuberculosis was made with negative results.

Came to hospital Nov. 5, patient was cystoscoped and the ureters catheterized with the following findings. Passed urine at 3 p. m. and sent immediately to examining room; bladder catheterized and a small amount of bloody urine drawn off; bladder was thoroughly cleansed with boric solution after the urethra was rendered non-sensitive with a 4% cocaine solution. The trigone and base of the bladder were found redder and more congested than at former examination; the interureteral bar was red, injected and somewhat swollen; the right ureter meatus normal; the left was redder and apparently swollen, but there was no evidence of inflammation. Near the left ureter, somewhat below and slightly internal, were several small injected, deeply red areas which looked very much like small ulcers, but which proved on closer inspection to be blood sediment in the small folds of the bladder; many small stellate blood vessels

were noted near the left ureter. Catheters were passed into both ureters and the finding carefully compared. Before beginning the examination a specimen of passed urine was examined. It showed that the urine had blood cells in perfect form and in large quantities, sufficient to make the urine appear bright red; some few pus cells, many epithelia of various types, albumen, granular and hyaline casts; no sugar, Sp. gr. 1024, acid, and in the bottom of the bottle was a dark red sediment composed wholly of blood.

It required five washings to clear the urine of blood due to so much sediment in the base of the bladder. The right urine was of perfectly normal color, reaction, chemical contents and specific gravity; the left urine was full of blood, acid, specific gravity slightly above normal, with hyaline and granular casts and epithelial cells present. In order to test the kidneys functionally, 1 c.c. of a 1% solution of phloridzin and 2 c.c. of a 3% solution of indigocarmine were injected subcutaneously and the urines examined separately every two minutes thereafter for sugar and the appearance of the blue color. The right kidney gave a positive reaction for sugar at the end of 30 minutes; the blue test for indigocarmine appeared in 25 minutes. The left kidney gave positive test in 20 and 25 minutes respectively. The left kidney passed more urine than the right in ratio of about 3 to 2; the spurts of urine came about the same in quantity, but the left came faster.

Diagnosis: Left unilateral renal hematuria of unknown pathology.

Recommendations: Exploratory operation followed by either nephrotomy or nephrectomy as decided upon at the time of the operation.

Operative findings: An incision was made exposing the kidney, which was found attached to the surrounding fat by strong adhesion bands, making it difficult to displace the kidney from its bed; it was delivered with some trouble due to firm adhesions which, finally, had to be tied off without getting the kidney perfectly free and leaving a part of the capsule behind. The kidney, after being delivered, was carefully examined for the presence of stones, either in the pelvis, ureter or kidney, but none were found; effort was made to detect any pathological condition present, but without success; then it was deemed advisable to bisect it, which was done along the border about  $\frac{1}{4}$  in.

behind the greatest curvature; the kidney being split widely open, careful search was again made for the cause of bleeding, but nothing more than some special brownish-red areas about the papillae were found; the cut surface was distinctly a dark brown and very much mottled and showed evidences of hemorrhage into the kidney substance, which could not have been due to the traumatism of handling the kidney, for the greatest care was exercised throughout the entire manipulations to avoid any such injury that might mislead one in subsequent microscopical diagnosis. From the mottled appearance of the cut surface, and from the dark blood stained areas, I concluded that it was best to remove the kidney, believing that the hemorrhage was generally distributed throughout the entire organ, but more especially in the cortex and medulla. The suprarenal capsule was left behind as it seemed to be free from disease. One very noticeable anatomical condition was the very greatly dilated condition of all the veins in this region; the renal vein, the veins connecting the adhesions and the ovarian veins, etc., were enormously dilated; the arteries were normal in size. The wound was closed with a tube drain. Uneventful convalescence, except slight infection around the tube.

**Pathological findings:** The kidney is slightly larger than normal and of uneven surface, showing here and there evidences of adhesions having been torn away from the capsule; the capsule comes off rather more easily than normal notwithstanding that there were many adhesions to the perirenal fat. Cut section shows a very mottled appearance, which is irregularly distributed throughout the organ, but especially in the cortex and medulla. There were no softened areas, the papillae were apparently normal. The entire cut surface has a soft granular appearance with medullary rays distinct. The blood vessels are of normal size and number.

**Microscopic sections:** Frozen sections stained with hematoxylin and eosin were made from many different areas of the kidney and a study of these shows that the pathological process was not uniform, but in isolated areas in different parts of the kidney; however, the major part was confined to the medulla and cortex, the cortex especially. I shall review the normal histology briefly. The cortex is composed very largely of the glomeruli, proximal and distal convoluted tubules, arched collecting tubules and the beginning of the straight collecting



tubules; the medulla is composed largely of the collecting tubules. The kidney is almost altogether a parenchymatous organ and, therefore, has very little interstitial tissue between the secreting structures. The blood vessels are intimately in association with the secreting cells, and with the possible exceptions of the liver and the spleen, the blood supply is probably the richest in the various organs of the body. The specimens show that the cells composing the glomerulus are degenerated and in many areas they have lost their identity, here and there they are mere granular masses without nuclei or distinct cell walls; some of them have disappeared, leaving the glomerulus a shrunken, shriveled mass, apparently functionless. In the areas showing the most degeneration, there are glomeruli apparently composed of hemorrhage and others are seen with here and there a few blood cells up to complete filling up with blood. The cells composing the proximal convoluted tubules have suffered the most; in large areas they are wholly degenerated as shown by the absence of nuclei and cell bodies leaving mere granular areas surrounding the widened lumen of the original tubules; in others, the cells are only partially degenerated, with from one to several healthy cells mixed among the dead ones. Hemorrhage of recent blood cells have in some places filled the lumina of the tubules and in other places the cells seem to be pushed away from the almost structureless *membrana propria*, showing that the blood has mechanically forced its way into the tube spaces. In some of the tubules are to be seen distinct clots due to coagulated blood; in these the blood cells are not distinct, indicating that there has been degeneration of the clot after it formed.

The cells of the distal convoluted tubules and the arched collecting and straight tubules are less involved in the process of degeneration, as they are nearly always found to be healthy. The blood vessels while structurally intact, are seen to be likewise affected. The endothelial lining is intact in some places, but where the cells of the glomeruli and convoluted tubules are most diseased the endothelial cells are, also, degenerated, as shown by the disappearance of the nuclei and the granulation of the cell bodies; the vessel walls, here, are also a part of the general destructive process and around them is seen leakage of blood into the tissues. This leakage is recent in some places and in others it is of earlier origin as evidenced by the accumulation of round cells in the surrounding tissues. The reparative activ-

ity in these regions seems to have been very feeble and often absent altogether. Some specimens, I presume those best taken, show the vessels very full of blood, especially the arteries, as if there were some obstruction to the outflow into the vein capillaries.

The other parts of the kidney are not very much involved in the process, as the cells are intact and apparently healthy; however, isolated areas are found showing somewhat the same condition as the cortex, but it is not enough to have had any effect on the hemorrhage from the kidney.

To sum up the findings: The appearance, microscopically, is that of a subacute hemorrhagic glomerulo-tubular nephritis.

Condition one year later: in excellent health; urine normal.

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Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

## THE ESSENTIALS OF FREUD'S THEORY OF PSYCHO-ANALYSIS

By C. P. OBERNDORF, M.D., New York City.

**A**LTHOUGH specialists in every field of medicine encounter diverse symptoms for which no organic basis can be discovered even with the most delicate tests at their command, genito-urinary surgeons are perhaps the most frequently confronted with the problems of functional disorders by patients who are constantly consulting them for psychical impotence, premature ejaculation, frigidity with the wife — which is occasionally due to a homosexual component, often unsuspected — or other sexual abnormalities. Furthermore, his surgical skill is often brought to bear for the treatment of anomalous injuries and mutilations of the genitals, such as self-castration or foreign bodies in the genital orifice, which direct abrupt attention to psychopathological conditions the existence of which had not even been suspected. While in the treatment of functional sexual disorders, both neurologists and genito-urinary surgeons have in the past been limited to such methods as hydrotherapy, electricity and medicinal tonics, which per se could not be expected to directly influence the condition, of recent years a new, psychological and really far more rational method of approach has been added to our therapeutic armamentarium through the ingenuity of Professor Sigmund Freud of Vienna and others who are adherents to his tenets.

Freud's theories were not hastily conceived, but were carefully elaborated after years of continuous, patient research and were

presented for the consideration of medicine and psychology with caution and modesty. Though at first sight they may appear fanciful or even fantastic, they are fast gaining credence or partial recognition among many psychiatrists who were long inclined to scoff. The research and ramifications in this field has progressed so rapidly in recent years and the theories in themselves are so intricate that it is no easy matter to present an exposition of them briefly, but I shall attempt to state some of the most important principles involved.

**The Theory of the Unconscious.**—As the very cornerstone of his theories, Freud emphasizes that the unconscious is not only a vast but also the most important element in psychological processes. In the conscious mind many processes originate, some of them pathological, which may become unconscious almost at the time of their genesis, and though unbeknown to their bearer may exert strong influence upon his actions. He considers, however, that most pathological unconscious processes are not conceived by the mature mind but become deeply rooted in childhood, and are pathological, perhaps owing to an infantile predisposition. Although such processes arise in infancy, they soon disappear from view as the waters from a spring in the sandstone country sometimes almost immediately sink below the surface and seek subterranean channels. While he admits that subsequent psychical trauma in adult life may exercise no inconsiderable influence in producing such diseases as hysteria and the other actual and psycho-neuroses, they are nevertheless intrinsically dependent upon a fundamental predisposition or an infantile trauma of a sexual nature. Though such trauma date from childhood and are entirely obscured from the surface of consciousness, they persist in a vigorous course submerged in unconsciousness, much as the subterranean brooks may become lost rivers, and emerge not only in unexpected places but in altered form.

**The Infantile Sexuality.**—The second point upon which Freud insists is that infantile sexuality is not only of great importance in the moulding of adult life, but is in itself far from being a simple entity. Of course the term sexual is used in a sense so broad as to embrace many infantile acts and movements commonly regarded as insignificant, thus including such innocent infantile sources of satisfaction as sucking of the thumb, toes or lips and the desire to be rocked and fondled. To these primary evidences of sexuality he ascribes a far more important rôle than is usually accredited them.

Later, comes the active irritation of the genitals, especially the penis and the anal orifice (which is considered a part of the genital zone by Freud), together with increasing interest in the excretory acts, both defecation and urination. This elementary stage, which is probably independent of any definite sexual longings, is called auto-erotism, and from this state the individual gradually normally progresses to object love — that is, the love of another person. The intermediate stage between these two, termed narcissism, is characterized by the fact that in the transition of the patient from those auto-erotic impulses which he collects in earliest infancy to the hetero-sexual object love, he takes first his own person, but more particularly his own genital region, as an object.<sup>1</sup>

The erogenous zone upon which the child may happen to concentrate his attention in the auto-erotic period is not limited by social or religious sanction and may be not only the genitals proper, but the anus, mouth, etc. This selection, however, is not a negligible factor, for a child who, for instance, chooses the anal zone for auto-erotic satisfaction, may become constipated for the sexual gratification which he derives therefrom, or, when the genitals themselves are selected, nocturnal enuresis may substitute for pollutions. In the auto-erotic and narcissistic stages Freud makes scant distinction between the sexes, for he practically assumes that in infancy each individual is originally polymorphously perverse in all directions — homosexual, masochistic, sadistic, etc.

In the narcissistic stage the individual may first choose the genitals of his own sex as an intermediate object love before going over to an object love, i.e. the genitals of the opposite sex. Adult homosexuals are therefore persons who during the narcissistic periods become extraordinarily firmly fixed in their homosexual inclinations, so that these continue with them in adult life, and though they may attempt to repress them, never quite succeed in forsaking their desires. All frank homosexualists who resist their sexual inclinations are apt to substitute such feelings by unusual interest in the affairs of the community.

Even before the individual has arrived at the stage of object love when he begins to extend his affections to other persons, these are most apt to become centered in the mother in the case of a boy, or the father in a girl, or on a brother or sister of the opposite sex. Such a fixation may be so strong as to unconsciously dominate the individual's career, so that his subsequent psycho-

<sup>1</sup> Brill, *Psychological Mechanisms of Paranoia*, "N. Y. Medical Journal," December, 1911.

sexual life may be dominated by his infantile interest in one person, thus producing what is technically known as a mother-, father-, brother- or sister-complex.

As development proceeds, primary sexual wishes may disappear into unconsciousness and such a process is really inevitable, as with increasing years and educational development, the senses of shame, disgust and ethics, which serve as censors, crowd down the infantile sexual wishes as intolerable, unworthy and incompatible with the individual's personality. When this occurs incompletely, due either to extraordinarily intense fixation in infancy or faulty adjustability, fragments of the infantile tendencies may persist in the form of a perversion, or may be negatively expressed in the form of a neurosis in which a substitutive outlet is afforded to the primary sexual impulse, or may be altered in consciousness into other pathological symptoms of a most varied character. Of course the patient is usually entirely unaware of this substitution, but many carefully studied cases exist which corroborate the theory that diverse painful somatic symptoms are in close mental association with childhood episodes and desires of a sexual nature.

**Method of Investigation.**—The method by which Freud uncovers and brings to consciousness these suppressed and long-forgotten trauma, is called psychoanalysis. Its object is to acquaint the patient with the repressed complexes which are militating against him, so that he may intelligently consciously cope with his problem. At first, Freud resorted to hypnosis in order to remove censorship and thus allow the patient to freely express and associate whatever should come into his mind. Both hypnosis, as well as its successor, the method of placing the patient in a recumbent position with all external distractions removed while he was associating, have proven to be unnecessary, so that now the patient is permitted to associate freely in the waking state, while the physician directs his own attention not only to the most prominent and palpable factors but also to apparently unimportant symptoms and expressions as a means of working out the infantile sexual life. This waking method minimizes the justice of the imputation so frequently made by critics of the psychoanalytic school that the complexes and traumas unearthed by the analyst were nothing more than ideas emanating from his own imagination and suggested to the patient by him while the latter was in the hypnoidal state.

Later, Jung of Zurich, a staunch and brilliant supporter of

Freud, introduced the association test as a means of eliciting the more superficial trends and at the same time affording the examiner a survey of the patient's general reaction and clues of complexes which should not be left unchecked. This test, which has become popular knowledge, consists in allowing the patient to state the first thought which comes into his mind when he hears certain stimulus words, which constitute a standard list, and recording the time required for response. Although the increasing and prolonged use of this test has disclosed its vagaries and certain sources of error which in a mild way diminish its value, very broadly speaking a retardation in the length of time taken by the patient to reply to a given stimulus, may be taken as an indication of a painful complex in connection with this word. In other words, the patient does not reply immediately because he does not wish to reveal some memory, which his consciousness has taught him to suppress as disagreeable, and therefore such retardation may be utilized as a starting point for further investigation.

As I consider the association tests merely a means of rapid psychological orientation with the patient's general mental trend, I have for some time employed in my stimulus list what may be called "double-barrelled" words. These are words such as drink, prick, peach, ball, bar, deer, match, etc., which normally permit a diverse range of association dependent on the patient's general make-up and thus one may rapidly gain insight into the type of personality under examination.

**The Relation of Dreams.**—While the association test does afford one means of gradual penetration into the realm of the unconscious, by far more important is the analysis of dreams, which really constitutes the sheet anchor of the entire theory. The theory of the significance of dreams which, like Freud's other work, is whimsical to the uninitiated, is a study in itself. Freud believes that in dreams, when through sleep the censorship of the conscious mind is held in abeyance, the phantasies and yearnings of the unconscious mind filter through to the light, though they appear in a distorted, grotesque, condensed, symbolic or dramatized form.

While on account of their bizarre disguise they may seem quite ridiculous and meaningless, if considered as an entity, when the separate items composing the dream are investigated individually and the thoughts associated with these items unravelled, these weird dreams will be found to represent a purpose, usually in the nature of the fulfilment of a wish or at least the most

plausible solution of some dilemma vexing the dreamer. It will be readily understood that the analysis of dreams is difficult, not only on account of their intricate character, and because what they manifestly represent does not indicate the unconscious longings of the patient, but because the patient himself is apt to offer both conscious and unconscious resistances to the investigation of painful experiences voluntarily long concealed. This is a common tendency in every-day life, for we forget, as a rule, the unpleasant occurrences of our former life, reverting in our reminiscences, only to the more agreeable things, so that childhood days, in spite of all their contemporary troubles and griefs, when viewed retrospectively seem particularly tranquil and happy.

Naturally, the interpretation of a dream—which most resembles a symbolic, incomplete mosaic, in which not infrequently one picture may be superimposed upon another with the same background—offers opportunity for criticism and doubt as to the correctness of its meaning. It is especially on the interpretation of symbols, by which Freud claims that the genitals are represented in dreams, that many slurs have been cast, though we must admit it to be the usual custom to refer to the genitals even in ordinary parlance in a symbolic way.

As the simplest example of a dream mechanism which has come to my notice, I shall cite the following example:—About a year ago a young lady in the course of a social conversation asked me if there were any meaning to dreams. She was of the opinion that they were the “silliest things,” for she had had the most “foolish dream” for several nights past, namely, that “her head was all shaved.” Upon looking at her head I was impressed for the first time with the sparseness of her hair and its tendency to recede about the temples. I thereupon asked if she had ever heard anything about shaving the head, to which she replied stoutly in the negative, but when I changed my question to “cutting the hair” the difference in the tone of her denial led me to ask the direct question: “Have you ever heard anything about hair which is cut growing more luxuriantly?” The upshot of the matter was a confession, after some good-natured bantering, that for sometime past she had been secretly clipping the ends of her hair every day in the hope that it might grow in thicker.

Undoubtedly this dream represented the unconscious fulfillment of a wish though, to be sure, in a dramatic and exaggerated form. While the actual sexual element in the grosser sense is lacking in this dream it was undoubtedly a wish for self-adornment

in an unmarried woman. When I recently met this young lady after her absence in Europe and attempted to recall the incident to her, she claimed to have forgotten it completely. Probably she has, either because I brought the unconscious wish directly to her consciousness, or, because she desired to forget it as an unpleasant memory. At all events she assured me that she had not had any dreams in the least resembling it lately, but, I might add, she has become engaged and married in the interval.

Extension of the Freudian Theories.—Freud's theories have found a far wider application than their mere relation to hysteria and the neuroses, and have been used to explain the various puzzling mistakes made in everyday life, such as mis-speaking, slips of the pen and the forgetting of certain names. As an example of the influence of the unconscious in such commonplace occurrences, I may mention the following incident. A young man, who happened to be at the same country hotel with me, found himself constantly calling a married woman by her maiden name, much to his own annoyance. Although he made several active attempts to remedy this, the mistake was constantly repeated. When he asked me how such a thing could occur, the merest scraping below the surface of consciousness revealed that this man had been intimate with the lady before her marriage and had at one time even contemplated marrying her. It was explained to him that his mis-speaking was probably an unconscious wish to have the lady in her former single state, which he finally acknowledged to be true, and thereupon was quite able to correct what was merely a petty annoyance.

Moreover, the process of sublimation, unconsciously, of sexual desires into study, the arts, literature or other activity, which forms a large and I must confess sometimes rather futile part of the investigation of the Freudian school, cannot be considered at length, though the study of the career of one of the famous American university athletes has convinced me that his activities were merely an ab-reaction against an intolerable, unconscious, probably homosexual component.

Especially in the study of functional mental disorders (notably dementia precox) among the insane, i.e., the work in the mortuary of psychology, have Freud's theories found strong substantiation, though of course very little benefit is to be expected from bringing unconscious traumas into the consciousness of an already diseased mind, for such mentalities lack the possibility of adjustment.

On the other hand, there is a constantly augmenting list of



therapeutic successes reported by trustworthy men which verify the value of Freudian procedures in phobias of various kinds, minor hysterical manifestations, homosexuality, and the persistence of infantile sexuality into adult life, which may give rise to various neurasthenic complaints, as in the case of a young journalist of my acquaintance, who vouchsafed confidentially to me, that after three years of treatment by every other known method for constipation, he was effectively cured through a brief analysis at the hands of a fellow psychoanalyst. Headache without organic basis, ptyalism, gastric neuroses, and even certain cases of periodic alcoholism, where the debauch is merely an ab-reaction from a disgusting though unconscious idea, have also yielded to this form of treatment after long-continued failures by the routine method. But I must repeat that to attain success requires not only a thorough knowledge of abnormal psychology and especially Freud's theories, but also the utmost patience on the part of the physician, for psychoanalysis is a tedious process lasting in many cases for over a year, so that its application is not only limited to selected cases, but also to comparatively few physicians.

249 West 74th Street.

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Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

### A COMBINATION CATHETER-APPLICATOR

By ROBERT L. DICKINSON, M.D., Brooklyn, New York.

Senior Gynecologist, Brooklyn Hospital; Consulting Obstetrician Methodist Episcopal Hospital, etc.

THE value of a device is in proportion to the frequency of its use. In view of the constant recurrence of bladder irritability in our gynecological histories, and the connection of such irritability with chronic congestion of the bladder base, some contrivance is necessary which will enable the physician to give frequent treatment simply, or even, in suitable cases, to allow the patient to make her own applications. For such a purpose, it seems to me, only urethral dilation by the metal sound can compare in efficiency and facility of handling with the instrument here described. Once the area and location of the trouble have been recognized by the cystoscope, applications may be made either to the bladder base or upper urethra without the inconvenience of undressing or the discomfort of the knee chest posture or the bother of cystoscopy. By its use solutions of cocaine and silver nitrate are available which otherwise cannot be employed because of precipitation by contact with the urine. By its use the bladder is left

practically dry, and drained of its last drops in readiness for the application. The steps of its employment are as follows:

1. Selection of the application: boiling of the instrument.
2. Washing of vestibule and placing pus basin across the nates.
3. Application drawn up into the upper, or applicator, half of the double tube.
4. The instrument passed into the urethra until the urine escapes, and the very last drop of urine coaxed out of the bladder by gentle trial of two or three slants, the urine dribbling out of the lower, or catheter, half of the instrument.
5. The bulb squeezed, the application spreads itself on the lower part of the bladder.

Applications of oil with or without iodoform, in tubercular bladders; argyrol 25 to 50%; protargol, 4 to 12%; and silver nitrate from one to 2% may be used with regularity. The average application for trigonitis would better be made every 3 or 4 days. Even tubercular ulcers do well under this treatment, though it may seem hit or miss. They do better, of course, with loosened clothing, knee chest posture, Kelly tube and head mirror, with the application made to the exact spot.

We have learned that much of the benefit formerly supposed to be due to irrigation of irritable bladders was due to the stretching. This instrument may also serve for that purpose by fastening to its outlet a rubber tube of some length, whereby the patient may easily clinch it, letting go when the discomfort becomes intolerable.

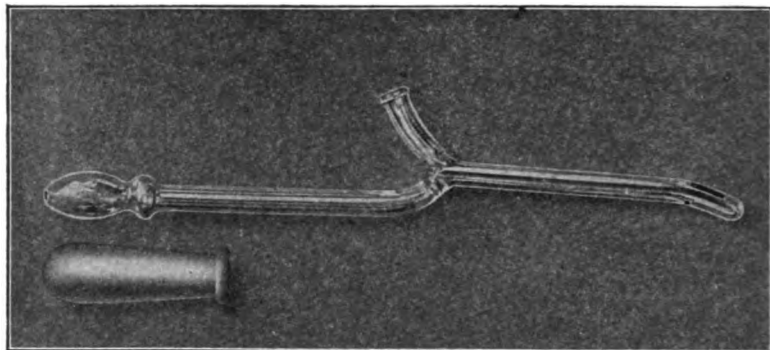
This two-way instrument is useful for bladder irrigation. Those who believe that every catheterization should be preceded, in the urethra, and succeeded, in the bladder, by a boracic acid irrigation will find this instrument better than the ordinary catheter.

Quite a number of intelligent women living at prohibitive distances from the office, or unable to pay the accumulating fees of the repeated treatment which these chronic conditions call for, have been entrusted with the use of this instrument and obtained excellent results. One teaches such a patient how, with the aid of a hand mirror slanted against a pillow, she can cleanse the vicinity of the meatus and pass the sterilized instrument.

The two-way catheter is an ancient institution. This little design claims only convenience and cheapness.

*Summary.* Bladder irritability being due largely to mild

changes in the trigone, the simplest means of relief is a double tube catheter-applicator of glass, of such form that the last drops of urine may be drained away just as the medicating fluid is to be squeezed in.



The urine, to the last drop, may be drained out by the lower tube so that fluid from the upper tube may be applied to an empty bladder.  
168 Clinton St., Brooklyn, N. Y.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

### URETERAL PAIN ASSOCIATED WITH SACROILIAC RELAXATION <sup>1</sup>

By A. ERNEST GALLANT, M.D.

ON July 18, 1911, Miss B., age 44, was referred to the writer, having suffered for the past twelve months with severe, cramplike pains in the *left iliac* and in the "sinews" of the left hip and leg, associated with "heartburning." For about a year she has noticed a lump in the left groin which "comes and goes," frequently accompanied by nausea, acid regurgitation, gas and bloating. Examination showed the left iliac fossa filled by a fibroid, which, with a broad ligament cyst was removed by supra-vaginal hysterectomy, Sep. 19, 1911, at the Baptist Deaconess Home. The dilated stomach reached two and a half inches below the umbilicus on the right.

While in bed, convalescing, the patient from time to time complained bitterly of pain in the *left iliac region*, along the course of the corresponding ureter, apparently exaggerated by colonic gas or constipation, and relieved by hot enemata and the passage of the gas with stools.

<sup>1</sup> Read before the New York Society of the American Urological Association, February 7, 1912.

During this time, of course, the abdomen was tightly strapped with plaster eight inches wide and extending around the sides of the pelvis, as is customary after celiotomy. The fifth day she sat up, and went to her home on the twelfth day after operation, (Oct. 1, 1911).

Oct. 9 I was called to her home and she said that she had been up and about the house until the day before yesterday, when she had started out for a walk, but after traversing a few blocks the old hip pain returned and she hastened back to her rooms, having to climb five flights of steps to do so, and tried to lie down on the bed; but every motion was so painful that she could neither sit, stand, walk or lie down, or even turn from side to side, and remained awake most of the night in a semirecumbent position.

There was also respiratory pain on the right side of the thorax and along the right loin. Oct. 10 she re-entered the Deaconess' Home and a diagnosis of dry pleurisy was made. The coincident cough was very annoying, nausea and vomiting at frequent intervals, and on October 12 the right kidney was found displaced and considerably enlarged. The foot of the bed was elevated 12 inches from the floor, and the kidney manipulated upward. That night the nausea and vomiting ceased, though the cough and expectoration continued. From Oct. 12, the temperature subsided by lysis from 104 F. to below 100 F.

Oct. 18 (10th day) after strapping the abdomen she sat up two hours and was up daily walking about the place until October 24, (18th day) when she returned home.

Jan. 18, 1912, twenty-three days later, the patient came to my office complaining that she was suffering from the same trouble and just as bad as before operation — inability to stand for any length of time, pain in the back, left side, thigh, and sinews of the leg, which made her very miserable and precluded work, or restful sleep. I noted that in coming upstairs she walked very slowly, holding her body rigidly and stepping very carefully. Her face indicated real suffering. She had removed the plaster strapping some days before. This story and manipulation of the ilia convinced me that the iliac synchondroses were relaxed. Plaster straps encircling the pelvis were at once applied and gave immediate comfort. Care was taken to have the ends overlap and secured from slipping by safety pins.

The iliac pain was along the *course of the left ureter*.

In thinking over this case I was led to realize that in a number of instances, especially patients in bed after operation, the

same pain *along the course of the ureter* has been quite a prominent symptom and caused much suffering, but has been incorrectly charged to the colon, especially if mucus were present in the stools; and leaves me at a loss to definitely say how many were the victims of more or less sacroiliac relaxation. Failing to find sacroiliac relaxation, as a possible source of ureteral pain, mentioned in any textbook and never having heard it referred to by genito-urinary surgeons or by those who have most thoroughly studied this subject, led me to present it for your consideration, discussion, and further observation.

Backache and persistent lumbago-like pains are frequently associated with inflammation or diseases of the pelvic portion of the genito-urinary tract, are commonly complained of after examinations and operations in the lithotomy position, and follow prolonged confinement in bed often enough to warrant our consideration, and keep us alive to the fact that it may be due to sacroiliac relaxation, with or without dislocation, and perhaps not caused by, though associated with, the urologic conditions for which we may be treating the patient.

When we recall the intimate relation of the ureter with the joint in the false pelvis, as it passes over the brim and down into the true pelvis, it is not difficult to understand how mobility of the joint can produce flattening, and stretching, tenderness and tension, perhaps intermittent obstruction to the urinary stream, with "come and go" pains radiating down the thighs and into the calf of the leg.

On the right side, however, the appendix may at times somewhat confuse the examiner, especially if the appendix is turned upward or lies behind the caput colli. The part that a prolapsed kidney may play in intensifying or mystifying the ureteral condition can readily be eliminated by placing the patient in bed with the foot elevated some twelve inches, when the kidney can be manipulated into its proper nest, and its undesirable symptoms abated.

*Later.*—Feb. 20, 1911; the patient reported that from the last application of the plaster strapping all pain ceased and she has been working every day. Her general condition is excellent, and her weight has increased  $8\frac{1}{2}$  pounds since operation. The only remnant of her former suffering being "a tired feeling in the left leg."

540 Madison Ave.

## MISCELLANEOUS ABSTRACTS

### Subparietal Rupture of Solitary Kidney.

A. J. Mayer and A. Nelson. *J. A. M. A.*, Oct. 14, 1911. The authors cite the case of a man 30 years of age, who seven days before, while climbing a ladder, had fallen a distance of from four to six feet, striking his right lumbar region against an iron rail. He suffered some pain in the side following the injury, but continued to void urine up to seven days after the accident. The writers were unable to learn whether or not the urine contained blood. Because of sudden urinary retention the patient was admitted to the hospital.

There were ecchymoses in the right lumbar region and perineum, and a large diffuse swelling could be felt in the right side almost extending to the umbilicus. The abdomen was distended and tense. About two ounces of bloody urine were withdrawn by catheter. He was catheterized twice more in the following 24 hours, but no urine was obtained. The history of the injury suggested at once rupture of the right kidney, but this did not explain the absence of urine in the bladder. Rupture of the right kidney with sloughing of the bladder wall seemed to the writers to be the only plausible explanation of the conditions present. Because of the condition of the patient, cystoscopy was not attempted.

An exploratory laparotomy was done, the incision being made to the left of the median line.

The peritoneum was found to contain about a pint of clear fluid which had no urinary odor. To the right, extending from the last rib to the crest of the ileum was a large oval swelling which evidently included the right kidney. No left kidney could be found. The bladder was tested and found to be intact. The abdominal wound was closed and the patient turned over on his left side. As the muscles were cut through, using the ordinary loin incision over the right kidney, there was a gush of blood. The kidney was found lying lower than usual but otherwise its position was normal. The lower pole of the kidney was broken off and sloughing. The cavity below the kidney was filled with blood clots and sloughing tissue. The ureter was found hard and considerably thickened. Drainage with tubes and gauze was instituted, the wound dressed and the patient returned to the ward.

Subsequently the patient voided normal quantities of clear urine but he never rallied from the operation and died 36 hours thereafter.

From the findings at autopsy, the writers concluded that, following the injury to the kidney, the upper segment continued to functionate until the gradually contracting blood-clot finally completely occluded the ureter.

The operation, by removing the obstruction, permitted the kid-

ney to resume its function. The autopsy findings showed that there had been no hydronephrosis.

The kidney was found to have approximately the normal shape; it was large and possessed two ureters and two sets of blood-vessels. Microscopical diagnosis showed acute nephritis. Absolutely no evidence of a second kidney could be found.

#### Non-traumatic Large Hemorrhage into the Kidney Substance or its Surroundings.

Russell Story Fowler (*Annals of Surgery*, December, 1911), reports the case of a woman, aged fifty-two, who, 10 days before coming to him, had noticed a slight dull pain in the back, which four days later became more severe; she then noticed considerable blood in the urine and several clots. Urination was accompanied by sharp cutting pain in the left lumbar region, radiating to the front of the abdomen and downward to the pelvis. Urination occurred three or four times daily, and the patient was not obliged to get up at night. There was a chill followed by fever. Three days before admission to the hospital there had been three attacks of vomiting. On the morning of admission the pain became localized to the left lumbar region, and there was considerable tenderness in that region. She had had three attacks of lumbar pain similar to the present one, the first twenty years ago, the second 5 years later and the third 6 years before the present attack. The third attack was the most severe.

Examination showed a tender immovable tumor the size of a cocoanut, occupying the site of the left kidney. The urine contained blood. Blood examination was negative as well as the remainder of the physical examination. Cystoscopy was not performed.

Upon exposing the kidney there was a gush of blood, and about a double handful of blood clots was removed from the kidney fat. A rent was found in the capsule, and the tissues about the renal artery and vein were oedematous. The kidney was removed and the patient made an uneventful recovery.

The author reviews eight authentic cases taken from the literature. In no case was a history of traumatism obtained. The onset of the attack was sudden in all cases. The pain was agonizing in six. In all the pain was referred to the half of the abdomen corresponding to the kidney affected.

One case gave urinary symptoms; as did the author's case. There was also blood in the urine in one case. Shock was a prominent initial symptom in most of the cases. The final location of the pain was in the lumbar region. Tumor was present in all cases. Abdominal distention was noted in all. Local discoloration of the skin was noted in three cases.

The symptoms vary according to severity of the hemorrhage.

The hemorrhages may be repeated and extend over a period of years.

The diagnosis is difficult or impossible. Operation was performed on six of the eight cases, of which two died. The two unoperated cases died.

#### The Care of the Bladder after Suprapubic Cystotomy.

P. Janssen (*Munch. Med. Woch.*, Jan. 16th, 1912). To avoid long lasting or permanent fistulae following bladder operations, the author advocates primary suture of the bladder, claiming that the method can be practiced in cases with severe cystitis and after prostatectomy. The technic is as follows: after making a horizontal skin incision, the deeper fascial and muscle structures are divided in the linea alba, the peritoneum is pushed upwards and the bladder mobilized laterally somewhat before being opened. It is very important not to allow the contents of the bladder (even though the bladder has been previously washed) to soil the wound; the author avoids this by puncturing the bladder with a trocar and canula. The bladder incision is then made in the median line. Before closing the bladder it is important to avoid stagnation of urine and to control hemorrhage. To avoid stagnation, a permanent catheter is introduced with its eye in the fundus of the bladder so that the urine flows drop by drop. Hemorrhage after prostatectomy is controlled by temporary tamponage and then by the introduction of a Pezzer catheter, the head of which compresses the small vessels at the neck of the bladder. Should post-operative hemorrhage persist, injections of gelatin may be tried.

The bladder is sutured in two layers, the first suture taking in all the layers exclusive of the mucosa; the second being a reinforcing Lembert suture with catgut. All subcutaneous hemorrhage is carefully controlled and three drainage tubes inserted, one large one in the pre-vesical space, the other two being placed above on either side of the incision. The wound is then closed with layer sutures. The catheter is left in place from 12 to 14 days. If it becomes incrustated it is removed and a Mercier catheter introduced. The drain in the pre-vesical space is kept *in situ* until the bladder wound is closed. Occasionally partial leakage occurs, but there is no danger of urinary infiltration if the catheter functionates properly. The author has had good results with this method and claims that the time of closure of the suprapubic wound is considerably shortened.

#### Lymphatic Varicocele.

F. C. Madden (*Lancet*, Jan. 6th, 1912), reports three cases recently operated upon, which presented the usual symptoms of varicocele but in which the swelling was due to the presence of tortuous coils of very thin-walled dilated lymphatics in the substance of the spermatic cord. This condition is in all probability a manifesta-



tion of filariasis though the filarial embryos have not been demonstrated in the blood. The first case was operated upon a few months previously for varicocele, with but a temporary relief of symptoms, the swelling returning in a more severe degree shortly after. At the second operation no evidences of varicocele were found; but masses of thin translucent dilated lymphatics were seen extending along the whole length of the cord. The affected lymphatics were excised without a recurrence up to date. In the author's case the patient gave a history of an increasing mass in the right side of the scrotum of five years' duration. Eight months before, he had been operated for a hernia and varicocele. No varicocele was present but there was a cystic enlargement of the cord extending to the external ring. The cystic dilatation was removed, although its true nature was not recognized at the time. The swelling soon recurred and was reoperated with apparently a successful result.

#### **Treatment of Prostatic Hypertrophy with Prostatic Dilatations.**

F. Kraemer. (*Münchner Med. Woch.*, Jan. 16, 1912). The author calls attention to the report of Bayer who has recently brought to notice a conservative method of treating prostatic hypertrophy. This method of treatment was in vogue many years ago with but poor success. Since then improved instruments have given better results. Bayer reports 12 cases; 6 were cured, 2 were markedly improved; the results of the other two cases were not reported. The author reports 4 cases, all of which showed marked improvement. The first patient was a man, 66 years old, with complete retention of urine for one and one-half months; he was dilated up to No. 44 Charrière with a Kollmann dilator. It is now one and three-quarter years since the last dilatation and urination is spontaneous. The other patients showed marked improvement under treatment, the residual urine diminishing rapidly, urination becoming easier, and the general condition improving. If carefully practiced there is no danger in this method of treatment. If much bleeding occurs after, a permanent catheter should be inserted and the bladder irrigated.

#### **Malignant Disease of the Testicle and its Treatment by Radical Operation.**

H. M. Davies (*The Lancet*, Feb. 17th, 1912): Sarcomata, according to Aschoff, are the commonest variety of testicular neoplasms. They are mostly of the round-celled type known as lympho-sarcoma, and develop from the intercanalicular connective tissue. According to Ewing, the disease is distinguished in the majority of cases by the involvement of both testicles, its rapid course, and by the development of multiple metastasis specially in the skin. Carcinomata of the testis are almost as common as the sarcomata, and almost always appear in the encephaloid type. Embryomata are frequently encoun-

tered, two types being described, the solid and cystic (dermoids). Endotheliomata are rare. Traumata and undescended testis play an important rôle in the etiology of testicular neoplasm. The clinical manifestations of a growth of a testicle are the following: a swelling in the scrotum, generally of oval shape with a smooth or irregular surface; the epididymis palpable posteriorly but not involved; and a consistency that varies considerably from an elastic or fluctuating mass to one of dense hardness. As the growth increases in size, the surface becomes more irregular; pain is rarely a prominent feature, although testicular sensation may be obtained in the posterior part of the swelling. The vas is rarely affected; the vessels of the cord may be enlarged or increased in number. Hydrocele frequently complicates the growth. A testicular tumor of many years' duration does not speak against malignancy, for embryomata may not develop malignant characteristics for years. The mortality of malignant growth of the testicle is very high. In a series of 100 cases treated by castration, 81 died and 19 were cured. Early diagnosis and a radical operation offer the only hope of decreasing so appalling a mortality. The radical operation consists in removing the testicle, cord, the artery and veins of the vas up to their origin from the aorta and entry into the vena cava or renal vein, the lymphatics draining the testicle, the glands into which they drain, and the surrounding fascia. All these tissues can be removed in one mass. The author reports a case of solid embryoma of the testicle showing myxosarcomatous tissue — which he operated radically, as above described. This makes the 13th case on record in which the radical operation has been performed. No statistics as to mortality or recurrences are given.

#### Acute Hematogenous Infection of the Kidney.

F. J. Cotton (*Annals of Surgery*, Nov., 1911), reports two cases of acute hematogenous infection of the kidney. The first is a typical early case originally described by Brewer, except for the complication of the floating kidney. Although no definite infarcts were found in the second case, nevertheless there seems to have been a septic infection of central origin, from the clinical picture of sepsis presented. Engorgement alone will not account for the septic picture.

The author makes particular note of the fact that in both cases the kidneys were considerably displaced and suggests that the anomalous position of the organ may be responsible for the fact that the infection, which was primarily general, became localized in that organ. That the kidney should be the site of predilection, has puzzled most writers on the subject.

#### The Incision for Lumbar Exposure of the Kidney.

W. J. Mayo (*Annals of Surgery*, Jan., 1912), describes a lumbar

incision which has been used in operations on the kidney, performed during the past two years at the Mayo Clinic in 203 out of 256 operations.

In the 203 lumbar incisions it was found necessary to cut the twelfth rib in 51 cases, and in 13 of these the pleura was accidentally opened. In not a single instance did the lung collapse or any harm result to the patient from opening the pleura.

The operations were all made with the patient lying nearly flat on the abdomen with a moderate elevation of the loins. This position, Mayo believes, serves to fix the chest, so that, if the pleura be opened at the extreme lower part, collapse of the lung will not often occur. Whenever the pleura was opened accidentally it was sutured with catgut. The pleural cavity was not infected in any of the cases. In a number of them, while exposing the posterior half of the twelfth rib for the purpose of division, they observed that as soon as the muscular and fibrous attachments (especially the quadratus lumborum and the lateral arcuate ligament which binds the twelfth rib to the transverse process of the first lumbar vertebra), were divided, the necessity for rib division disappeared.

Beginning at a point two to two and a half inches lateral to the dorsal spines near the outer margin of the erector spinae muscle, a longitudinal incision is made two to three inches in length through the skin, superficial fascia and posterior layer of the lumbo-dorsal fascia (vertebral aponeurosis) which covers the erector spinae muscle. The incision lies behind the twelfth rib from the angle, if present, nearly to the head, and reaches downward to a point one-half inch below the angle. From this point, the incision passes obliquely downward and forward along the anterior margin of the quadratus lumborum muscle, to a point an inch above the crest of the ilium, and there turning runs forward parallel to the iliac crest as far as necessary.

The posterior superior lumbar triangle (Kelly) just beneath the twelfth rib is then exposed by cutting an opening through the external and internal oblique, transversalis, and latissimus dorsi muscles, exposing the transversalis fascia in its lumbar portion. This fascia is then opened freely, exposing the perirenal fat. The ilio-inguinal and ilio-hypogastric nerves are identified and retracted out of harm's way and the lower part of the incision completed. The twelfth rib is then cleared in its posterior portion upward and backward nearly to the articulation of the rib with the transverse process of the twelfth dorsal vertebra, and the pleura is pushed upward. By retracting the erector spinae muscle on the one hand, and the costal margin on the other, a wide exposure is accomplished at the point of previous inaccessibility. As a rule the kidney can readily be drawn through the incision to the surface with but little traction. The incision is easily closed and there is little or no danger of hernia.

**Treatment of Enuresis of Children.**

F. D. Wachenheim (*Amer. Journal of Dermat.*, Nov. 4, 1911), calls attention to the importance of eliciting a careful history in order to determine whether diurnal or nocturnal enuresis predominates. The type of enuresis considered by the author takes place only at night. He believes that the treatment should be especially directed to training the child to urinate at stated intervals during the day, and that during the sleeping hours, the child should be roused at hourly intervals until it is found to be dry. This will necessitate from one to four or even more wakings according to the severity of the case. As to medication, atropine may be given in fairly large doses (never less than 1/150 gr. twice daily at six years of age, and up to 1/100 gr. three times a day near puberty); but this drug acts only as an adjuvant to the training treatment, and is of very little value when used alone.

**The Value of Pyelography.**

W. F. Braasch (*J. A. M. A.*, Dec. 16, 1911), gives the results of his experience with the employment of radiography of the injected urinary tract in over 500 cases examined at the Mayo Clinic, St. Mary's Hospital. He has come to regard it as a valuable and a frequently necessary aid in arriving at the correct diagnosis of conditions of the urinary tract.

The greatest value of pyelography resides in its ability to demonstrate:

- (1) the extent and character of dilatation in (a) the renal pelvis and (b) the ureter.
- (2) the deformity accompanying renal tumors.
- (3) congenital anomalies.
- (4) the aid it affords in the interpretation of radiographs.

Renal dilatation of mechanical origin will be readily recognized by the increased size of the pelvic lumen as well as by the knobbed shape of the calyces. The greater the distention, the shallower and broader will the calyces appear. The etiologic factors can often be interpreted from the contour of the distention. The outline of the inflammatory distention is characterized by marked irregularity. The degree of irregularity will vary with the extent of the inflammatory process.

Dilatations of the ureter can be outlined in the injected radiograph. The dilatation may vary in degree from a scarcely recognizable distention to an extreme sacculatation. Mechanical obstruction may be due to (1) stricture, commonly tuberculous, (2) extraneous pressure, as from pelvic tumors, (3) urinary retention as the result of extreme bladder retention, (4) ureteral stone.

Inflammatory dilatation is usually present with every renal infection whether in the cortex or in the pelvis.

The injected radiograph is often of considerable value in identifying doubtful tumors of the upper abdomen. In the author's experience a distinctly abnormal pelvic outline or other evidences of tumor involvement can be demonstrated in the pyelograph in the majority of renal tumors.

Braasch has found that the pyelograph gives most accurate data in identifying intra-renal and intra-ureteral shadows, particularly where there is no gross evidence of urinary infection.

Pyelography is the best and often the only method with which congenital anomalies of the kidney and ureter can be clinically demonstrated. The position of the so-called pelvic kidney is clearly outlined in its relation to the surrounding bony structure. The fused or horse-shoe kidney with its pelvis adjacent or situated in the same side may be graphically demonstrated and the various ureteral anomalies can be well outlined.

#### Post-operative Retention of Urine and Cystitis.

J. H. Jacobson and J. G. Keller (*J. A. M. A.*, Dec. 16, 1911): Heretofore a post-operative cystitis has been considered by many authors as solely due to catheterization. While this view is largely correct, it is the purpose of these writers to show that preventable abnormal anatomic conditions of the bladder, dependent on the surgical procedure itself are in many cases the real predisposing etiology factors in the production of this complication; and that the catheter *per se* is merely the exciting cause.

Quoting Casper and Freyer, they give the following organisms named in order of frequency in which they are present, as the cause of cystitis: *Bacillus coli-communis*, *B. Proteus vulgaris* (Hauser), *B. Tuberculosis*, *staphylococcus ureae liquefaciens*, *B. typhosus*, *M. gonorrhoeae*. When the urine aspirated from the bladder during laparotomies, or colpotomies was examined bacteriologically, the clear urine of women contained no germs (Baisch).

Enriquez, Franz, Hofmeister and Melchior, have shown that the last portion of spontaneously discharged urine almost always contains germs, even after the most careful cleansing of the urethral orifice, although Melchior succeeded after repeated preliminary irrigation of the urethra in obtaining a practically sterile urine.

Baisch found that although no colon bacilli were present on the day of admission, they were invariably found in the urethra and vestibule after the patient had lain in bed for a few days.

Owing to the absence of the mechanical cleansing effect of the urine during the act of micturition or the introduction of organisms into the bladder from the use of the catheter, urinary retention is the most common complication which predisposes to an inflammation of the bladder following surgical operations.

Among the theories advanced in explanation of post-operative retention of urine, the authors mention the following:

The inability of some patients to urinate in the recumbent position; a neurosis especially in nervous individuals; a reflex condition, attributed to the sympathetic nervous system in which ureteral spasm and vesical paralysis are produced; disturbances of the intra-abdominal pressure; paralysis or atony of the detrusor muscle from toxic substances similar to post-operative atony of the intestine; trauma of the peritoneal covering of the bladder; interference of the blood and nerve supply of the organ and a swelling or edema of the mucous membrane about the internal urethral orifice.

That the catheter is the most important single exciting factor in the production of cystitis is explained by the trauma of the mucous membrane of the urethra or bladder incident to its introduction, and by the conveyance into the bladder of some of the organisms which are present in the lower urethra of bed-ridden patients.

The predisposing factors of trauma and congestion become of great significance in all operations, whether vaginal or abdominal, in which a separation or dissection of the bladder from its attachments to the cervix or vagina is necessary.

Cystoscopic examinations of a number of patients on whom uterine operations had been performed showed marked congestion of the bladder wall and distortion of the ureteral orifices.

They suggest that whenever extensive dissection or separation of the bladder is a part of the operation, an accurate reposition and covering of its raw surfaces with peritoneum becomes necessary. Such operations also require the most rigid asepsis in their after-care should catheterization be required.

The use of a solution of 2 per cent boric acid in sterile glycerine injected through the urethra into the bladder has proved itself of sufficient value to the authors, that they advise its routine employment in all cases of post-operative urinary retention, before resorting to catheterization.

#### **A Case of Anuria of One Hundred and Fourteen Hours' Duration.**

A. D. Dunn (*J. A. M. A.*, Feb. 17, 1912), cites the following case:

A man 45 years of age was seen by him on March 18, 1909. The patient had been under treatment for three weeks for an attack of headache in which albumen and blood had appeared in the urine. The trouble had rapidly disappeared under saline diuretics. On March 9 at about 10 P. M. he had passed urine for the last time. Saline diuretics, diuretin, digitalis, sweats and hot irrigations of the bladder were tried without effect. The patient had sunk gradually into a deep stupor, with the face flushed, the breathing stertorous,

and the skin hot and dry. He could be aroused, but could not fix his attention. His eyelids were puffy, and the pupils reacted sluggishly; the fundus was normal; the tongue was coated and the breath had a urinous odor. The heart was negative; pulse 80 full and bounding; blood pressure 80; temperature 98.6° F.; lungs normal except for numerous râles at the base. There was some tenderness over the kidneys. No urine was obtained on catheterization.

A diagnosis of acute congestive nephritis (or edema of the kidney) was made. No result was obtained from large quantities of hot normal salt solution per rectum and on March 14, 1909, 114 hours after the last urination, under light chloroform anesthesia both kidneys were exposed. They were found enormously swollen, dark red in color, tense and bulged through the slit in the capsule. Urination commenced four hours after decapsulation and 173 ounces were passed during the first twenty-four hours and 64 ounces during the second twenty-four hours. Dehydration was so rapid that subcutaneous and continuous rectal salines were employed to counteract an imminent collapse. Recovery was uneventful.

The patient is alive and well two and a half years after the operation. Repeated examination of the urine up to the present time have failed to reveal any chemical or morphologic abnormalities.

**Suprapubic Prostatectomy. With a Method for the Control of Post-operative Hemorrhage.**

L. Freeman (*Surg. Gynec. and Obst.*, Jan., 1912), reviews the advantages and disadvantages of suprapubic and perineal prostatectomy and states that the weak point in the suprapubic operation has been the control of hemorrhage. This would never be difficult to accomplish with gauze packing provided counterpressure could be exerted. It is always easy enough to fill the prostatic cavity with gauze, but it has a tendency to at once loosen and drop back into the bladder. The entire bladder can be tightly packed but this is uncomfortable, inefficient and otherwise objectionable. The author suggests packing the bleeding cavity with a long strip of iodoform gauze, or gauze soaked in some styptic material. The end last inserted is retained in the grasp of a pair of large clamp forceps, preferably with a square, blunt end. The handles of these forceps project through the hole in the bladder, and for some distance beyond the abdominal wound. Properly graduated pressure upon the gauze packing by means of these forceps will control the hemorrhage. This pressure is readily obtained by passing an ordinary rubber bandage around the patient's body, beneath the pelvis and over the notch between the locked handles of the instrument. Gauze pads are adjusted about the handles in such a way as to incline them at any desired angle, thus regulating the direction of the pressure, which should not

be greater than necessary, and the whole dressing is held in place by adhesive strips and an ordinary bandage.

#### **Herpes Zoster in Connection with Kidney Lesions.**

M. Krotoszyner (*J. A. M. A.*, Sept. 9, 1911): Krotoszyner reports two cases of herpes zoster occurring in connection with kidney lesions. The first case was that of a man, 38 years of age, who had suffered from frequent micturition and intermittent attacks of left sided renal colic several years prior to the appearance of a large fluctuating hydronephrotic sac on the same side. This was punctured about ten years ago and evacuated through a small lumbar incision. A small calculus that was probably the cause of the ureteral obstruction was removed. Gradually the same symptoms returned and grew worse. The general examination was negative; the kidneys were not palpable; the Wasserman test was negative; the urine was cloudy, containing albumin and pus. Cystoscopy revealed the picture of chronic cystitis. Urine from the right kidney was clear; that from the left cloudy, with pus, and containing *B. coli*.

The function was markedly impaired on the left side. Radiographic plates were negative. An advance left-sided pyonephrosis was diagnosed and the patient prepared for nephrectomy.

Two days before the date set for the operation, the patient complained of a slight chill and tenderness over the left thigh radiating toward the knee. On examination an herpetiform eruption was noted on the anterior surface of the left thigh, an area about 5 cm. long and 2.5 cm. wide being involved. Under expectant treatment the zoster readily dried up.

The kidney which was found to be as big as a child's head and almost entirely destroyed was removed and the patient made an uneventful recovery.

The writer comments on the fact that the area of herpes zoster in this case corresponded to the distribution of the crural branch of the genito-crural and the middle cutaneous nerves. He thinks it possible that the eruption was superinduced by the introduction of the ureteral catheter.

The second patient (51 years of age) was admitted to the hospital on account of intermittent attacks of right-sided colic radiating from the costal arch downward. The general examination was negative. Cystoscopy and radiography also revealed nothing. The renal function was good on both sides.

An exploratory laparotomy was performed at the patient's request and an elongated tortuous appendix removed. The patient's rapid recovery was interrupted, about two weeks after the operation, by a slight chill, rise of temperature, and tenderness over the right chest and back, where an herpetic eruption appeared extending from



the external margin of the manubrium sterni to the median line of the back.

The zoster covered the sixth intercostal interspace corresponding to the tenth dorsal nerve of the spine. The eruption rapidly disappeared, and the patient returned to his home.

A few months later the same attack of right-sided abdominal colic set in with greater intensity than before. Urgent micturition; independent of the attacks, with the passing of cloudy urine followed, and the pains were reported to radiate to the bladder and scrotum. Cystoscopy revealed pus and blood from the right kidney, normal urine from the left. Functionally, the right kidney showed deterioration, while the left was normal. The injection of argyrol for pyelography caused the same pain as the attacks and the pelvis was found to be high up between the ninth and eleventh costal interspaces. With much difficulty the kidney, containing pus and sandy detritus, was removed. The recovery was uneventful. The location of the zoster on the chest and back, somewhat above Head's zone, and corresponding to the tenth dorsal nerve, finds its explanation in the unusually high position of the diseased kidney.

Krotoszyner concludes that these cases tend to prove the correctness of Head's teachings. According to this author, irritation of the sympathetic nerve results in paresthesias and pain in certain zones of the periphery, and that these symptoms may be followed by the appearance of a typical herpes zoster.

The author believes that a careful investigation of Head's hyperalgesic cutaneous zones should in the future be made in all cases of abdominal colic of doubtful origin.

#### **Polyp of Urinary Bladder in a Thirteen Months Old Child.**

I. S. Koll (*Annals of Surgery*, Nov. 1911), reports the case of a child thirteen months of age who had been in perfect health up to one month before entrance into the hospital. At this time the mother noted that the child had not urinated for some hours and was crying evidently from pain. The abdomen was distended, the patient was catheterized and a large quantity of turbid urine obtained. Shortly after, retention became again complete. When first seen by the writer, the patient was in great pain, the fundus of the bladder reaching as high as the umbilicus. There was a marked phimosis; catheterization yielded 360 c.c. of slightly turbid urine, which upon examination, showed a great many leucocytes, no blood, and culturally a pure strain of colon bacillus. Upon passing the catheter, a distinct obstruction was encountered at the internal urethral orifice, which, however, promptly allowed the catheter to pass into the bladder. Cystoscopic examination was negative. Circumcision and permanent catheter for forty-eight hours did not relieve the retention. At intervals, the patient would urinate a few drops, then suddenly stop.

Rectal examination and exploration with a sound were negative. A supra-pubic incision was made. When stripping back the peritoneum, a marked hypertrophy of the musculature of the bladder was evident and the bladder itself was about three times its normal size. On incising the bladder, a tumor, the size of a hazelnut was seen lying just below the internal urethral orifice. This was smooth, and was attached by a pedicle about two centimeters in length which sprang from the mucosa lining the posterior wall of the urethral orifice. The growth was removed and the bladder closed. Pathological report showed the growth to be a simple polyp.

#### The Use of Silver Wire in Opening the Kidney.

E. K. Cullen and H. F. Derge (*Surg., Gyn. and Obs.*, Vol XIII, No. 4, Oct. 1911), give the results of a series of experiments on dogs, in which it was planned to diminish the amount of hemorrhage from nephrotomy. A No. 3 or 4 silver wire threaded on a straight liver needle, was passed through the kidney at the upper end of the pelvis. The capsule was then nicked with the knife from the point of entrance of the needle around to the point of exit, in order to avoid tearing the more resistant capsule. With the kidney held firmly in the hands of the assistant the wire was readily brought out to the surface by a gentle see-saw motion. The amount of hemorrhage, in a given time (20 seconds) was then accurately measured. On examination the cut surfaces appeared almost as smooth as if a knife had been used. They showed an occasional small spurting vessel, but in most instances the bleeding was essentially venous in character and could be readily controlled by mere approximation of the surfaces. The wound was closed with one superficial layer of mattress sutures with fine black silk.

At a corresponding distance from the upper pole a transverse incision was made with the knife, passing from the cortex to the pelvis. The amount of hemorrhage was then similarly measured. Examination of the cut surfaces showed free hemorrhage with some actively spurting arteries, quite a different picture from that obtained with the wire. This wound was also closed with a superficial mattress suture of fine black silk, but more were usually necessary than in the wire incision. A comparative study of the quantity of extravasated blood in this group, showed an average ratio of one to two in favor of the wire.

In a second group of cases the kidney was laid open from pole to pole and the pelvis widely opened. In 5 cases a knife was used and in 5 others a silver wire.

The avascular zone of Brödel was followed in making the opening. The comparative results of this incision were similar to those of the transverse incisions in which both the wire and the scalpel were used.

The infarcts resulting from these incisions were in nearly every instance, smaller where the wire was employed. The authors de-

scribe various incisions with the silver wire to be employed in nephrotomy.

They conclude that in nephrotomy with the silver wire the following represents the main advantages of the wire incision over that of the knife, as obtained in their experiments.

(1) The amount of bleeding at operation averaged only one-half that observed in the knife incision. (2) The bleeding was readily controlled. (3) There was no post-operative hemorrhage. (4) The resultant infarct was much smaller.

#### The Removal of Ureteral Calculi from the Bladder under Guidance of the Cystoscope.

G. Gellhorn (*Surg., Gyn. and Obst.*, Nov., 1911), describes a method of removing calculi from the vesical opening of the ureter. A pair of alligator forceps are passed through the urethra into the bladder alongside the cystoscope. The forceps and stone are brought into the same field of vision, and under guidance of the eye the concretion is grasped with the forceps and pulled out of the ureteral opening.

The cystoscope is removed and the stone is delivered through the urethra.

#### Tubercular Epididymitis.

From an analysis of the end results of seventy-one cases of tuberculosis of the epididymis Dr. J. Dellinger Barney (*Bost. Med. and Surg. Jour.*, Vol. CLXVI, No. 11) draws the following conclusions:

1. After the removal of one or both epididymes the large majority of patients are found to be in good condition and to have gained weight.
2. In two thirds of the cases there is no demonstrable evidence of tuberculosis elsewhere than in the genito-urinary tract. When present it is most commonly found in the lungs or bones, but any organ may be attacked.
3. Renal tuberculosis rarely follows an infection of the epididymis.
4. Tubercle bacilli were present in eight out of ten urines as shown by the guinea-pig test. These urines also contained blood and pus, while those giving a negative reaction were normal.
5. A small majority of cases have a normal urine, and no urinary disturbances either before or after operation.
6. Post-operative sinuses are found in 25% of cases, but as about two thirds of the patients were seen during the first year after operation, and as many sinuses remain open for several months, this figure would be ultimately much reduced.

Although we have not, as yet, any large number of cases to prove it, we are firmly convinced that the use of tuberculin after operation hastens convalescence and the closure of sinuses more than any other measure.

7. No case on whom epididymectomy was performed is known to have had a recurrence in the corresponding testicle.

8. Tuberculosis of prostate and vesicles is found in more than half, and it is probable that this number would be greater were our methods of detecting early and centrally located lesions more accurate.

9. In a very large majority the sexual function is undisturbed, but the semen is found to be sterile in 85%.

10. A comparison of many orchidectomies with a few epididymectomies show the latter to have resulted more favorably. It is a fact, however, that infection of the second epididymis is to be expected, with or without operation on the first epididymis, and whether that operation be epididymectomy or orchidectomy.

11. The mortality of operations for tuberculosis of the epididymis is 5.47%, the cause of death being a general miliary tuberculosis.

#### **Hematuria in Appendicitis.**

A. U. Frisch. (*Wien. Klin. Woch.* Jan. 4, 1912.) The urinary system is often implicated in appendicitis, the bladder being most frequently involved through a nervous reflex which can manifest itself in various ways, as renal colic, vesical tenesmus, pain after urination and priapism, without any evident anatomical lesion. If the genito-urinary tract is found intact the symptoms point to a beginning appendicitis. This symptom complex can be explained by the fact that the inflamed appendix irritates the plexus vesicalis through the intervention of the plexus pudendalis, and that the ureter and kidney are affected by the dense nerve anastomosis between the renal, hypogastric and vesical plexuses. The author reviews the thirteen cases of hematuria in appendicitis reported in the literature showing the following etiological factors for the hematuria. Adhesions between the inflamed appendix and the lower end of the ureter were found six times; three times the inflammatory process had spread to the kidney; a toxic nephritis was found twice; two cases remained unexplained. The author reports two of his own cases occurring in young men, both giving histories of repeated attacks of colic in the right loin closely simulating renal colic. Attacks of hematuria occurred in both cases, the urine being microscopically markedly bloody, a cystoscopic examination having revealed blood issuing from the right ureter in one case. Later the patients developed symptoms typical of appendicitis and at operation diseased appendices were found without any adhesions between the appendix and the kidney ureter or bladder. The author concludes that the hematuria in both cases was undoubtedly of renal origin on account of the following characteristics: 1. The hematuria always occurred after an attack of appendical colic. 2. The hematuria subsided quickly, the urine being normal in a few days. 3. The sediment was composed almost entirely of blood cylindroids with a few isolated

red blood cells and epithelial elements. The explanation of the hematuria is still in dispute. The author thinks it most likely an embolic or thrombotic process, probably a retrograde thrombus formation from the pampiniform or internal spermatic veins or the lumbar veins.

#### The Question of Sexual Abstinence.

P. Näcke (*Deutsche Med. Wochenschr.*, Oct. 26, 1911) calls attention to the importance of an exact definition of "sexual abstinence." Thus some authors regard those who are continent as far as coitus is concerned as being sexually abstinent, and others believe that onanism even "day dreams" and "psychic onanism" should be excluded in a proper use of the term. Freud and his school would even go so far as to characterize these as being sexual. The author is of the opinion that sexual abstinence should refer to a state in which there is no indulgence in either hetero- and homo-sexual intercourse or in their substitutes — onanism, fetishism, sadism, masochism, with orgasm and ejaculation. Such continence may be total or partial, voluntary or forced, permanent or temporary, intermittent or continuous. Abstinence depends upon two facts. First, the strength and character of the *libido*, and second, the will-power. The basic cerebral condition "Anlage," upon which the sexual desire depends, is congenital; it is fashioned to some extent by the development of the sexual organs, and manifests its greatest activity from the twenty-fifth to the fortieth year. Continence therefore will naturally be most difficult to maintain during the years of maturity.

As to the question of the dangers of sexual abstinence, students of sexology are much at variance. Although there have been those who maintain that no bad effects can follow total restraint, the consensus of opinion to-day is hardly in accord with this view. The contention relates now rather to the quantity and quality of ill effects and sequelae. Such authors as Touton, Näcke and others assert that but slight harm can result to young people; other writers — Eulenburg, Marcuse, Nyström, et. al.), are convinced that the ensuing danger is considerable and occurs oftener than the former school supposes. Since our knowledge of the presence of sexual abstinence is dependent on the anamnesis, it is naturally often difficult to be sure of its existence. Furthermore, the investigation of all the possible causes that may be responsible for an existing pathological state, is a work of no mean dimensions. It is an onerous task, therefore, to establish a reliable relationship between the symptoms and the illness for which we are searching the cause. The meager history furnished by those who are exponents of the dangers of restraint reveal the weak side of the arguments of this school.

Näcke's conclusions, based upon his own observations and the reliable reports of others, may be summed up as follows:

1. A normal *libido*, and normal potency are the *sine qua non* for the existence of "*sexual abstinence*."

2. Sexual abstinence is not harmful when it is of temporary or partial nature. The danger resulting from permanent abstinence depends upon the age and nervous constitution of the individual.

3. If the sexual desire is moderate and the mind is properly engaged, and the body is sound, even permanent abstinence may lead to but the slightest nervous disturbances during the years of maturity, since nature provides a vent in pollutions.

4. If the desire is marked and there is a neurotic predisposition, harmful effects may follow. These are conditions of depression, and anxiety, delusions, etc., all well within our conception of a case of neurasthenia.

5. In such cases, however, sexual causes are at work, so that sexual abstinence can be regarded only as one of the factors.

6. Psychoses are not the results of sexual abstinence.

From the practical standpoint, the practitioner may draw the following lessons:

(a) Young people should be advised to be abstinent as far as possible until marriage, particularly because of the danger of contracting venereal disease.

(b) In the presence of exaggerated *libido* or when the data furnished by the case in point lead to the presumption of untoward sequelae, marriage must be suggested, or in lieu of same, sexual intercourse with proper precautions.

(c) Nervous and all other symptoms should first be treated by the physician, and sexual abstinence should only then be regarded as their cause when all other explanations fail and when the exaggerated desire cannot be diminished by therapy.

#### On the Use of a Definite Temperature in Treating Disease, and the Destruction of the Gonococci.

J. A. Fulton (*Medical Record*, Feb. 24, 1912) has found that there are some germs which a comparatively low temperature will destroy, and the one most easily reached is the gonococcus. The gonococci cannot endure a temperature above 113° F. outside of the body. He believes that he has proved that a temperature, a few degrees above this, will destroy them in the body.

The gonococcus is of low vitality. The resistance to treatment of the disease produced by it, is due to its tendency to bore beneath the surface. He has applied heat in the treatment of acute gonorrhea, in a number of cases. The results have led Fulton to believe that the disease may be cured or aborted in one week and possibly in one treatment.

The application is made with a metal tube in which water is made to circulate at a known temperature and which is supplied with a

thermometer at the point of inflow, and another one at the outflow. This is connected to an insulated tank which prevents the rapid loss of heat.

The urethra is irrigated with boracic acid or saline, and a weak anesthetic applied before the bougie is inserted. The bougie is inserted before the water is allowed to flow through it. The temperature should not be allowed to fall below 119° F. This temperature should be maintained for from thirty minutes to one hour. The treatment is followed by slight swelling of the mucosa and a watery discharge. Bathing with cold water relieves the swelling. A mild zinc injection and potassium citrate internally are given for a few days.

Fulton has had patients get well under this treatment in one week where one application of the heat was made.

After three applications on successive days he has had no case take longer than eighteen days for a cure. He had one case of epididymitis and one case of cystitis. In treating chronic cases his results have been better by this than by any other method.

#### **Epithelia Found in Urine, and their Differentiation as an Aid to Correct Diagnosis.**

A. T. Gaillard (*Medical Record*, Feb. 24, 1912) concludes that all epithelia originating in the genitourinary tract may be differentiated; that the diagnosis made by the clinician can always be confirmed by microscopical examination of the urine; and that valuable aid in making a diagnosis can always be given when the clinical symptoms are obscure or too vague to allow of a positive diagnosis.

#### **Colon Bacillus Infection of the Urinary Tract.**

R. M. Rawls (*Medical Record*, Feb. 24, 1912) reports a series of cases presenting definite clinical symptoms, and with the colon bacillus present in cultures of the urine. The author's cases show that the bacillus coli may be the cause of acute urinary infection, in health, in the puerperium and after gynecological operations.

#### **Sexual Neurasthenia and the Prostate.**

G. F. Lydston (*Medical Record*, Feb. 3, 1912) doubts whether it is possible for one to indulge in either masturbation or sexual excess for any great length of time, without producing disturbance of prostatic circulation and innervation. Such patients are advised to stop their evil habits, but although the sensitive prostate and hyperesthetic verumontanum are ignored, yet they are continually sending sexual stimuli to the psycho-sexual centers where they are at once transformed into erotic ideas. Lydston believes that a distinct lesion underlies many of these cases, and that not only local treatment must be applied but regulation of sleep, diet and work is advisable. Hydrotherapy, general massage, and static electricity, all have their uses in conjunction with prostatic massage, instillations of silver, and, in

infected cases, irrigations. Urethral dilatation should supplement the local treatment. A sea voyage often accomplishes wonders.

Where sexual neurasthenia is associated with real or imaginary spermatorrhea, obstinate prostaticorrhea, or seminal emissions of frequent occurrence, resistant to treatment, Lydston has frequently obtained excellent results from temporary resection of the *vasa deferentia*. Subsequent anastomosis is practical.

Cases of impotency are most trying of all. He has found that a very fair proportion of cases of sexual neurasthenia associated with impotency are remediable by resection of the *vena dorsalis penis*.

#### **Sexual Disorders in the Male Clinically Considered.**

E. Fuller (*Medical Record*, January 27, 1912) affirms that although Genito-Urinary Surgery is at present a well recognized department of medicine, 95 per cent. of the work is carried out on the urinary portion, the genital end being largely ignored. In diagnosing a genito-urinary case, Fuller follows this routine: (1) the voluntary recital by the patient of his clinical symptoms, (2) the putting of questions to the patient bearing on the urinary function, (3) the putting of questions bearing on the sexual function, (4) questions relating to general physical and mental conditions and among these are included those relating to family history. After this came the physical and special examination as follows: (1) an external inspection and general examination, (2) observation of the act of urination and of the first portion of urine voided, (3) digital palpation per rectum of the prostate, seminal vesicles, and vesical floor, followed by the voidance of the remaining portion of the urine, (4) urethral examination and examination, if required, of the upper urinary tract.

Fuller outlines the careful measures in which he questions these patients, particularly if they are impotent. He lays much stress on the sense of touch necessary in the rectal examination, by which means one is not only able to diagnose the existence of a lesion but to differentiate between the forms of lesions as well as the grade and the chronicity of a given form and apply both the palliative and radical or operative forms of surgical treatment.

Stripping and massage of the vesicles and seminal vesiculotomy (performed 224 times by Fuller) have given excellent results in nearly all cases of sexual disorders, traceable to the vesicles.

#### **A Latent Hypernephroma with a Solitary Metastasis in the Spine.**

C. B. Keenan (*Medical Record*, Jan. 27, 1912) reports the case of a man, 49 years of age who entered the Royal Victoria Hospital, Montreal, presenting symptoms referable to a spinal tumor. The lower dorsal region of the spinal cord was explored and revealed a tumor of the bodies of the tenth and eleventh dorsal vertebrae which projected into the spinal canal, compressing the cord. Complete removal



of the tumor was not possible and a section excised for microscopical study showed sarcoma. The patient died after the operation. Autopsy showed an association of the tumor of the spine with a second mass on the upper pole of the right kidney. Investigation of the microscopical structure showed the two tumors to be the same. The kidney tumor was judged to be the primary growth and was proven to be hypernephroma.

The clinical history shows that tumors of this kind may give rise to metastases before they make their presence suspected either by local pain or by hematuria.

#### Chronic Posterior Urethritis, Vesiculitis, and Epididymitis in Men Beyond Middle Life.

M. R. Parker (*Medical Record*, Jan. 27, 1912) has frequently found the above three conditions existing in the same patient. He divides these sufferers into three classes: the tuberculous, gonorrheal, and hyperemic, and deals only with the latter class. These patients have led an active sexual life, followed by a period of non-gratification. When sexual stimulation takes place, the organs become congested; and if this is not relieved by a completion of the sexual cycle, the hyperemia remains and as time goes on a stage of continuous hyperemia results. Parker has found the most constant results to be a posterior urethritis and an increased cell growth, resulting in an hypertrophied prostate. In some cases the posterior urethritis extends by continuity to the seminal vesicles and to the epididymis. The epididymitis relapses and he has found vasectomy to be the most satisfactory treatment, one inch of the vas being removed. He has operated upon eleven cases for this condition with a good result in each.

#### A Large Multiple of Prostatic Calculi as a Late Result of Perineal Prostatectomy.

W. D. Webb (*Journal A. M. A.*, Dec. 23, 1911) reports the case of a man 68 years of age, who had been operated for hypertrophy of the prostate 17 years before, and who complained of incontinence and frequent desire to urinate. The operation had been done by the perineal route. On examination, he was in very poor physical condition, the urine was alkaline and filled with pus. The penis was swollen, residual 250 cc., capacity 360 cc. A rough obstruction was encountered in the posterior urethra. A radiograph showed a large oval mass apparently in the bladder, rectal examination revealed a hard, smooth, insensitive mass in the site of the prostate.

A suprapubic cystotomy revealed a smooth bladder, free from concretions. An incision through the prostatic capsule exposed thirteen hard, faceted stones, the polished surfaces of which fitted accurately so as to form an oval mass.

They were of phosphates and weighed 24 gms.

**Cancer of the Prostate.**

Robert C. Bryan (*Sur., Gyn., and Obst.*, March, 1912). Bryan states that cancer of the prostate was first recognized by Langstaff in 1817. In 1867 Billroth first operated for this condition. A diagnosis of the condition is often difficult, owing to the fact that only one surface of the gland is accessible. Furthermore, the organ is frequently a seat of inflammatory changes, hyperplasia and bacterial invasion, and cancer, which is not infrequently associated with hypertrophy, starts in the substance of the gland, later on invading the periphery as a nodulation, a sclerosis or an induration which may readily be confounded with an innocent subcapsular thickened cyst wall, a hematoma or calculus.

About 1% of all carcinomas are prostatic. From 14 to 20% of all prostatic enlargements are malignant. Cancer may be expected to follow in chronic hypertrophy of the prostate in the old man, just as it does in other chronic inflammatory processes of the body which have been subject to the excitation of prolonged stimulation.

Cancer of the prostate is inaugurated at that instant when the acini of the prostate burst and the cells wander into and invade the surrounding tissues. The microscopic diagnosis is not always clear.

Bryan classes cancer of the prostate as scirrhus or glandular. The former may be confounded with the hard fibrous prostate, the latter with the large, over growing adenoma. It may originate in a normal, an atrophic gland or one which has been the seat of a chronic prostatitis.

Carcinoma does not result as a degeneration of a previously benign adenomatous process, but if it occurs in an enlarged gland, a non-hypertrophic area is first involved. It often remains in the confines of the gland for a long time.

The process extends backward along the ejaculatory ducts, involving the bladder and seminal vesicles beneath the fascia of Denonvilliers.

The writer gives three classes of cases: 1. The precancerous invasion, associated with or independent of, a benign hypertrophy. There are no physical signs, the operation is performed for hypertrophy. The results are good.

2. When the cancer establishes itself peripherally and there is an invasion of the ejaculatory ducts, vesicles, nodular induration, fixation of the urethra, pain, hemorrhage or weakness.

3. Progressive and marked cachexia and anemia, where pain or hematuria have been persistent and uncontrollable. Metastases are evident, urinary function harassing, and the gland requires attention, not for its removal but to relieve these conditions, which such an environment has brought about.

It is difficult to draw a distinct line between these classes. The

prostate itself causes no symptoms in the early stages of carcinoma; the subjective symptoms are given out by the bladder.

The following features may attract the patient's attention:

(1) Frequency of urination, due more to a stimulation of muscular activity and nervous control from the pressure of rapidly increasing cells than from pressure of an obstruction.

(2) Pain, caused by mechanical irritation and stimulation of nerves, supplying the parts encroached upon by the carcinomatous invasion. At first it is brought on only by urination; later it become continuous.

(3) Hematuria. Present in about 9% of cases.

(4) Intercourse is diminished, impossible, painful or bloody.

(5) Loss of weight may be the first feature noticed by the patient.

In differentiating cancer from hypertrophy, Bryan gives the following facts:

(1) The age is farther advanced. (2) By rectal examination the prostate is usually enlarged, fairly symmetrical and appears larger than it really is, from the involvement of the vesicles.

The shape follows that of the normal prostate that has projected backward and upward. Later it becomes asymmetrical. The surface is usually even and smooth, nodules indicating but the fascia of Denonvilliers has given way or become fixed by the invasion. The consistency is dependent upon the peripheral invasion. The gland is stony hard. The mobility of the gland becomes reduced through peripheral invasion and massage is painful. Pelvic glands which are involved in about 50% of cases may be palpated. Catheterization is often painful from infiltration of the prostatic and membranous urethra.

The amount of residual depends upon the extent of the obstruction. The cystoscope may reveal intra-vesical protrusions or ulceration.

Osseous metastases in the spine, femora or long bones may be the first symptom of prostatic cancer.

Bryan holds that delayed diagnosis is directly responsible for the large death rate, the lowest recorded being 69% within the year of the operation. Bryan concludes that the treatment resolves itself into early diagnosis and removal with perineal resection of the urethra and bladder neck.

In the more progressive type, associated with intravesical overgrowth, infiltration anteriorly about the deep urethra and posteriorly in the intervesicular space, and characterized by frequency of urination and dysuria, whether a perineal section should be performed or the entire gland removed or a cauterization employed, is to be decided more upon metastases and glandular involvement. In the terminal stages suprapubic drainage is the most comforting aid.

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## THE TIME FOR PROSTATECTOMY.\*

BENJAMIN TENNEY, M. D., Boston, Mass.

**P**ROSTATECTOMY successfully performed does away with one of the great terrors of man's old age. The mortality is already low, not over 5% in the hands of careful men working under good conditions, and the results are becoming more satisfactory to patients as operators learn to avoid the post-operative fistulae and incontinence which often followed the earlier attempts on the gland.

In the first place this paper deals with prostatic obstruction and only incidentally with prostatic hypertrophy. I have cauterized through an open tube a median projection which was causing complete obstruction in a man of forty-one and given him perfect and lasting relief, and I have enucleated a prostate weighing 248 gm. from a man of 69 who had not used a catheter more than a dozen times. We may find general hypertrophy of the prostate with very little obstruction and complete obstruction with very little hypertrophy, but obstruction always produces symptoms which can be grouped to mark off four different stages in the disease.

The symptoms of the first stage resemble those of stricture in the difficulty or slowness of starting the urine, loss of speed and force in the stream, and a second flow of urine if the patient sits for a time after the first urination. Occasionally when the first hypertrophy appears in the prostatic urethra well down towards the verumontanum the patient may complain of imperative urination and some leakage. Pain is not common. These symptoms are often disregarded by the patient, or if noticed

\* Read before the American Urological Assn., New York, April, 1912.

they are considered as one of the necessary evils of life beyond fifty, and he seldom comes to our clinics or offices to complain of them, though he may reassure himself as to the condition of his kidneys by having his urine examined. If such a patient be examined a moderate sized sound will be a little tight in the prostate, the urinary distance will be increased, there will be thirty cubic centimeters or more of residual urine, the comfortable capacity of the bladder will be slightly below normal, and the cystoscope may find the internal meatus raised a little at some part, and more or less prominent muscle ridges in the bladder wall.

So far whatever changes have taken place have been compensated for. The bladder muscle has grown in strength with its growing labor. So long as the patient remains in this state he is not very uncomfortable and there is no reason to think that such a degree of prostatic obstruction will cause any changes in the kidneys or general health.

It seems to me that we do not yet know enough about the growth of hypertrophies in the prostate to advise radical treatment at this stage, but if it should be demonstrated that the group of nodules which produce these mild symptoms are the very ones and the only ones which we find grown large in the later stage of the disease it will alter the picture. Some pathologists in their description of hypertrophies in the prostate and their insistence that our enucleations are not complete prostatectomies seem to hint at this, but more facts are needed before one accepts such a conclusion for all cases. The nodule which is single and intra-urethral can and should be removed when it causes the annoyance and embarrassment of imperative urination, whether another is expected to grow or not. As to the other cases I do not believe that any radical surgical treatment is called for at this time, but I do believe that they should be looked over at least twice a year by a competent man so that the progress of the disease may be watched and stopped at the most opportune time. If one case of prostatic hypertrophy in six is carcinomatous we ought not to dismiss any of them without a clear understanding and a warning to return with any increase of symptoms.

In the second stage of the disease the daily calls to urinate grow more frequent and the patient is awakened once or more at night. If he be unable to urinate when the desire comes on he may suffer intense pain and be unable to urinate when opportunity offers or only drop by drop. Examination at this time will find residual urine to the amount of 50 cc. or more and a much

diminished bladder capacity with an increase in the urinary distance. At the same time the urine may be clear and practically free of cellular elements. Cystoscopic examination will find a trabeculated bladder and a deformed prostate.

Tabetics may present the same symptoms without so much diminution of the bladder capacity, but the removal of the prostatic obstruction from a tabetic is as well worth while as from another man and has given great relief to a recent patient of mine.

This stage of the disease seems to me the most desirable for operation for the following reasons:

1. There is no hope of spontaneous improvement and every probability that conditions will grow worse.

2. The kidneys have suffered little or none from back pressure.

3. The bladder is still ahead of the bacterial invasion.

4. The amount of material to be removed is less than it will be later and the risk of bleeding is possibly less.

5. If the hypertrophy be benign it guarantees the patient against the pain and risks of the catheter life and sepsis.

6. If the hypertrophy be malignant it is the early operation which gives the patient the best chance for complete removal.

7. In some cases it will permit of the "ideal prostatectomy" which is an operation completed at one sitting, without drainage other than urethral, and with bladder tightly closed. I have had the pleasure of doing this twice both by the suprapubic route. One patient left the hospital on the eighth day and the other on the ninth, both emptying their bladders normally. Their convalescence was like that of an interval appendix case.

8. The patient is younger than he will ever be again and there is a steady increase in the mortality rate with each decade from forty on. In 1906 Dr. Henry M. Chase and I worked this out on a collection of 816 operated cases and the table is reproduced here from the *Journal of the American Medical Association*:

Age.	Cases.	Mortality, percent.
39—49	8	0.
49—59	120	5.8
59—69	422	9.5
69—79	240	15.
79—89	24	33.
89+	2	50.

Against this early operation we have only the slowness of the profession in general to advise surgical interference before life becomes impossible without it. Our patients are more ready to accept a surgical cure than their physicians are to advise it.

The third stage usually begins when the patient acquires the catheter habit, though the fourth or septic stage may precede it. The catheter serves a man with prostatic obstruction as a truss serves a man with hernia. Both are time honored expedients for avoiding surgical operations which were at first unknown, until recently both uncertain and dangerous, and which are now successful and safe under the best conditions. The catheter usually brings improvement and some relief from the discomforts and disabilities of the second stage and at first there is a condition of comparative ease.

Long life and a catheter are not incompatible. One of my patients with glycosuria began at 65 and used it up to 88 without great physical discomfort, and with only occasional attacks of acute infection, possibly one or two a year. Another has just died at the age of 77 who has boiled and passed his catheter six times in every twenty-four hours for the past sixteen years with little if any resulting cystitis.

On the other hand a patient of 84, who had never used a catheter, was taken with acute retention and hematuria, promptly operated and back at his work as head of a big school in five weeks. A relative of his then appeared at the age of 80 who had used a catheter at intervals for five years. He had hematuria and pyuria, a small phosphatic stone, a large intravesical prostate and so much spasmodic pain that he would have welcomed death as a relief at times. He was also operated with complete success. We all can multiply these examples many times.

The catheter habit is a hard one to break off so long as its slave is comfortable. No medical argument or lurid picture of future danger has half the influence over the victim that a few hours of real pain have. A constant hematuria does not disturb him nearly so much as the painful necessity of passing the catheter every hour.

Clean cases in the catheter class are more pressing because older than those who have not reached this condition. If a man can stand the continuous trauma of a catheter he can stand the trauma of an enucleation. If he bleeds to death it is the fault of the operator or the after case. If he die of uremia he was uremic and not properly prepared before the operation or there was some

slip in the after treatment, and when our conservative and timid brethren will tell us how to prevent the aged from dying of cerebral and pulmonary disease without operation we can stop the post operative mortality from these causes.

Unfortunately most prostatic obstruction cases are kept from seeking operative relief until they have exhausted the resources of the catheter and are more or less septic. When they present themselves for examination they have infected bladders, they are debilitated by suffering, toxemia, and often by loss of blood and secondary changes in their kidneys. Operating on such cases is like operating on suppurating gall bladders and appendices. The patient has not only to recover from the operation but from the condition which led to the operation — often a more serious matter.

The fact that most patients can be relieved of their obstruction and recover even if old and feeble, with noisy heart and albuminous urine, provided their preparation, operation, and after care are correct and painstaking is a poor argument for delay if more would recover if operated early.

It is the constant cry in abdominal surgery: "Give us the cases early and we will show better results." That same cry should be taken up by men interested in urology and the results will justify our attempt to educate the rest of the profession.

308 Marlboro Street.



## TWO CASES OF HYPERNEPHROMA OF THE KIDNEY OF PARTICULAR INTEREST

By WM. HUTCHINSON, M.D., Montreal

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of the Royal Victoria Hospital.)

ONE hesitates in these days, when so much has been written on the subject of hypernephroma, to report cases without entering into a lengthy discussion on the origin of these tumours. However, inasmuch as the following two cases present certain very interesting points both from a clinical and pathological standpoint, it will suffice to discuss these points alone.

In the first of these cases a method was demonstrated whereby large kidney tumours could be removed extraperitoneally.

The second illustrates how errors may arise from radiograms.

The first case was that of a man aged 47 who had been suffering from a dull pain in the right lumbar region for the past four weeks. He himself noticed a swelling in the right side of the abdomen which he said had been increasing in size. Two weeks previous to entering the hospital he began to pass blood in the urine and continued to do so up to the time of operation.

The examination of the abdomen revealed a mass in the right side extending into the loin and across the middle line for a short distance.

The colon was displaced inwards but covered a portion of the mass.

There was a moderate degree of tenderness in this region.

Cystoscopic examination demonstrated a blood clot being expelled from the right ureteral orifice, and following that, bloody urine could be seen flowing from the opening. The ureters were catheterized and it was found that normal urine was coming from the left kidney, but nothing would flow from the right catheter as it became rapidly blocked with blood clot. During the few days that he was in the hospital before operation he ran a typical septic temperature.

In view of this temperature and the enlarged kidney, it appeared as if we were dealing with an infected kidney. However, the ejection of a considerable amount of bloody fluid from the ureteral orifice made it apparent that the case was not one of

pyonephrosis. The enormous size of the kidney seemed to exclude pyelonephritis. All things being considered, the conclusion was arrived at that the case was one of renal tumour which had become secondarily infected.

We were then face to face with the problem as to how best to remove this large mass. It was apparent that the intra-abdominal route would be unsafe in view of the infected condition of the kidney. On the other hand it was obviously impossible to remove so large a mass through the ordinary loin incision.

The method employed was as follows:—Following the usual loin incision, a second incision was made transversely, extending inwards from the upper end of the first one. This incision passed through the skin, subcutaneous tissues and muscles, leaving the peritoneum intact. The transversalis fascia still remained, offering a resistance to the displacement of the peritoneum inwards. It was at the reflection of the peritoneum from the posterior abdominal wall onto the anterior abdominal wall that this fascia had to be severed. As soon as that was done it was found to be quite simple to displace the peritoneum inwards. By this means sufficient room was obtained to remove even this large mass.

The pathological examination showed that the kidney had been almost entirely replaced by a variegated tumour, the whole weighing three and a half pounds. The microscopic sections showed the tumour to be a typical hypernephroma.

The second case was that of a female, aged 43, who had been passing blood in the urine for the past 10 months. During that period she had had attacks of pain in the right lumbar region which radiated down the thigh, and on one occasion was of such a severe nature that she lost consciousness. She had had occasional attacks of frequency, but these always came on at a time when she was passing a considerable number of clots. At these times she would suffer from pain in the region of the bladder.

There had been no loss of weight during this period, but she felt she was getting weaker.

The examination of the abdomen revealed a large mass, which was situated in the region of the right kidney, extending from the loin to the middle line of the abdomen. It was movable within a small radius and was slightly tender over the portion which could be felt in the loin. The colon was displaced to some extent towards the mid-line, but still covered a portion of the tumour.

Ureteral catheterization showed blood and pus coming from the right kidney. The urine from the left kidney was normal.

Phenolsulphonephthalein was used as the functional test, 1 c.c.=.6 mg. being injected subcutaneously and it was found that it appeared in the urine from the left kidney in six minutes and in that from the right in eight minutes. Judging from this test one would say that there was no appreciable diminution in the functional activity of the right kidney.

The skiagraph showed a shadow in the right loin, having the same density as a calculus.

The diagnosis therefore lay between a tumour of the kidney and a large stone in the lower pole of the kidney.

The usual oblique incision was made in the loin, and on opening the fatty capsule a mass presented which had the appearance of a portion of the kidney containing a calculus. At first it was thought that this was the lower pole of the kidney, but later it was found that the kidney was lying transversely, the lower pole being displaced towards the middle line. On making a small incision through the fibrous capsule this hard substance was seen to be black and brittle, indicating that it was not a calculus but inspissated blood. The whole kidney was then delivered and it was found that the mass and its capsule could be separated from the kidney by blunt dissection, save at the lower and back part, where the junction of the capsule of the mass and the capsule of the kidney seemed much thicker and required cutting. When this was separated there was seen to be a small greyish-white area on the denuded kidney surface which had the appearance of malignancy, though this was the only abnormal character in the external appearance of the kidney. On account of this malignant looking spot it was deemed advisable to remove the kidney. This was done in the usual way.

When the mass was cut through it was found that the substance which felt hard was simply a shell of inspissated blood, surrounding soft degenerated tissue and blood. Quite a large area of the capsule was calcareous.

The origin of the mass naturally excited question. Was this the adrenal, and the seat of an old hypernephroma which had become partially degenerated and later had invaded the kidney by direct continuity? Or was it an old hypernephroma of the kidney which nature had attempted to destroy and wall off from the rest of the kidney? The sections proved that the second view was the correct one, as remains of the kidney cortex were found in the capsule. In places throughout the capsule areas of degenerated hypernephroma cells were seen, even in the calcareous

portions. On opening the kidney it was discovered that half of its substance was replaced by a new growth. This proved on microscopic examination to be a typical hypernephroma.

The first case demonstrates clearly that mere size does not militate against the extraperitoneal method. In a noninfected kidney this might not be a very serious consideration but in the case of a severely infected one, such as we had to deal with, this was of prime importance.

The second case was of interest from the standpoint of the skiagraph, which led one to suppose that the kidney was the seat of a calculus, whereas at operation it was found that the shadow was due to a calcareous deposit in a tumour. It was also of interest from the pathological side. The mass which was found situated on the upper pole of the kidney was evidently an old hypernephroma of the kidney in which a hemorrhage had taken place destroying the main growth. One notices that it had become almost completely separated from the kidney. There seems to have been an attempt on the part of nature to localize the new growth and gradually destroy it. Unfortunately this was not altogether successful, as at one spot the tumour broke through the capsule, invaded the kidney substance, and took on a more malignant character.

## ESSENTIAL HEMATURIA \*

By A. NELKEN, M.D., New Orleans

ONLY recently, a great deal of attention was paid to the subjective symptoms of the patient and to the gross and microscopical appearance of the urine in an effort to diagnose the source and cause of blood in the urine.

The progress made in genito-urinary surgery in recent years, the discovery of the X-ray, and, especially, the perfection of the cystoscope have all combined to bring about a remarkable advance in the diagnosis of urological diseases, making it as nearly exact as the science of medicine can reasonably hope to be.

As a result, the pathological causes back of so-called "essential hematuria" are better understood, and we find this diagnosis being made with much less frequency than was the case a decade ago.

"Essential Hematuria" is defined by Pilcher as "bleeding from a kidney, arising suddenly, without warning, without discoverable cause, and devoid of symptoms other than the presence of blood in the urine."

Bleeding from a "healthy" kidney has long been recognized. Rayer,<sup>1</sup> in his book published in 1837, devotes a chapter to the discussion of hemorrhage from a sound kidney. One of the earliest explanations of this condition was that it was due to a vaso-motor disturbance. Socoloff,<sup>2</sup> in 1874, reported a case in which Botkin referred the hematuria to a local brain affection and a secondary disturbance of the vaso-motors in the kidney. Legieu,<sup>3</sup> in 1891, again advanced the idea of an angio-neurotic hematuria. Klemperer<sup>4</sup> (1897) defended this theory, holding that there is a disturbance of the vaso-motors in the kidney—a paralysis of the vaso-constrictors, causing dilatation of the blood vessels and resulting diapadesis of red blood cells. He treated several cases with good results by rest in bed and suggestion. Schede,<sup>5</sup> while sceptical, granted that a small number of cases were angio-neurotic in origin.

Senator<sup>6</sup> first described the so-called "idiopathic hematuria" as a hemophilia. One of his cases was operated upon subsequently by Sonnenburg, who removed the kidney which appeared macroscopically healthy, but in which Israel demonstrated localized areas of interstitial nephritis.

\* Read before the La. State Med. Society, April 23-25, 1912

Guisy<sup>7</sup> reports three cases of what he terms "hysteric hematuria" in whom the attacks seemed to be brought on by nervousness.

Guthrie<sup>8</sup> reported twelve cases of idiopathic hematuria in the closely related members of a single family.

However, as the experience with these types of cases has increased, surgeons have discarded these views as to the etiology of "idiopathic" renal hemorrhage.

In 1898, M. L. Harris<sup>9</sup> gathered from the literature 16 cases of "essential hematuria," adding two of his own. In 1907, Steinthal<sup>10</sup> said that there were hardly four exactly observed cases reported. In 1910, Motz,<sup>11</sup> in a thorough review of the whole subject, maintained that there were only two unexplained cases on record, one the case of Klemperer, and the other that of Schede, and that even these two were doubtful.

In their excellent paper on the subject of hematuria, Malherbe and Legieu<sup>12</sup> said: "All renal hematurias are symptomatic and rise either from a general cause, toxic or infectious, or they arise from some renal lesion."

I believe that I can say that this view is generally accepted to-day. A diagnosis of "essential hematuria" means only that the cause of the renal bleeding has not been diagnosed. An interesting example, showing with what circumspection we must accept even the pathologist's report that the kidney is healthy is the often quoted case of Nicolich.<sup>13</sup> He removed a kidney for prolonged hematuria endangering life. In Vienna, the kidney was pronounced healthy by a competent pathologist. In Paris, Albarran and Motz found a few discrete lesions of glomerulo-nephritis. In a case reported by Albarran,<sup>12</sup> a lesion of chronic interstitial nephritis, the size of a millet seed was found. Albarran points out that this lesion might have been easily overlooked, and the kidney reported as healthy.

A complete examination of the kidney is only possible after nephrectomy. And even if competent examination shows the kidney to be healthy, we have still to rule out the ureter as the possible source of the bleeding before we are in a position to defend the diagnosis of "essential hematuria." Experience demonstrates that hemorrhage from hollow organs will commonly cease if the viscus be put at rest, as evidence the usual stopping of bladder bleeding after suprapubic drainage. Nephrectomy has the result of stopping the peristaltic movement of the ureter, and it is not difficult to believe that a lesion of this tube will not

only stop bleeding but may even heal after removal of the kidney. Chute<sup>14</sup> suggests that the ureter be excluded as the source of the bleeding by collecting the urine at different levels along its course with the ureter catheter. This must be of doubtful diagnostic value, since we can not be sure that the blood does not come from some distance below the tip of the catheter. I have seen cases of traumatic bleeding from the ureter where the blood has shown with the tip of the catheter in the kidney pelvis, although I was satisfied that the location of the trauma was near the ureter ostium.

Hemorrhage from the kidney, due to calculus, to new growths, to tubercular disease, and the hematuria of tropical countries due to infection of the kidney with the *Bilharzia Hema-*tobia, are well recognized. Also well understood are the hematurias due to systemic or toxic causes. That blood in the urine is sometimes a symptom of acute nephritis was known by Bright.

Numerous other causes have been given for bleeding from a single kidney.

A. T. Cabot<sup>15</sup> reported a case where severe hemorrhage accompanied movable kidney. The same reason has been assigned by Picque and Reblaud.<sup>16</sup>

Thickening of the capsule and peri-nephritic bands of adhesions were found in cases reported by Rovsing<sup>17</sup> and, more recently, by Schwyzer.<sup>18</sup> It is of interest, in this connection, to note that adherent bands about the kidney have several times been mentioned as being found by operators who attributed the bleeding to other causes.

Albarran,<sup>19</sup> Davidsohn,<sup>20</sup> and others have reported cases where unexplained renal bleeding proved to be due to minute foci of tuberculosis.

A case in which was found a small concretion at the tip of a papilla is reported by Abbe.<sup>21</sup>

Frisch<sup>22</sup> collected 13 cases of hematuria complicating appendicitis. Adhesion of the appendix to the ureter was responsible in six cases. In three, the inflammatory process had involved the kidney. In two, there was a toxic nephritis. In one case, blood in the urine was coincident with each recurring attack of appendicitis, no cause being found. Other cases of hematuria complicating appendicitis are reported by Seelig<sup>23</sup> and by Hunner.<sup>24</sup>

Renal varix or angioma of the renal papilla as a cause of painless hematuria was first described by Fenwick of London,

Fenwick<sup>25</sup> reported three cases, two cured by nephrotomy and one by nephrectomy. Other cases have been reported by MacGowan<sup>26</sup> and by Whitney and Cabot.<sup>27</sup> The subject of renal varix has been recently reviewed interestingly by Pilcher,<sup>28</sup> who reports three cases. How cure follows nephrotomy for hematuria due to varix is explained by Broedel's<sup>29</sup> description of the peculiar distribution of the venous radicals at the base of the renal calices. An incision through the posterior row of the calices avoids all the arteries, but severs six of the connecting veins. Venous circulation is carried on by the anastomosis at the upper and lower pole of the kidney. These small angioma collapse when doing a nephrotomy through Broedel's line, and are very likely to be overlooked in the macroscopical examination of the kidney, and it is not difficult to understand that such kidneys may be reported as being healthy if this point is not borne in mind.

Without underestimating the frequency of the several causes enumerated above, surgeons have come to recognize, however, that the most frequent etiological factor responsible for so-called "idiopathic" or "essential" hematuria is chronic nephritis. This fact, which had been often hinted at by many clinicians since Rayer, was first definitely stated by Albarran<sup>30</sup> in 1898. He said that we often observe copious bleeding in chronic nephritis which is mistaken for hemorrhage due to stone, tuberculosis, or cancer of the kidney. This statement was further emphasized by Pousson<sup>31</sup> in a paper read before the Surgical Society of Paris a few weeks later. In the discussion that followed the reading of Pousson's paper, other cases were reported by Poirier, Potherat, and Nimier.

The diagnosis of unilateral nephritis has been made by Edebohls,<sup>32</sup> DeKeersmaecker,<sup>33</sup> and others. Røvsing<sup>34</sup> has, likewise, maintained the existence of a unilateral nephritis, claiming it to be infectious in origin, and his position has been supported by the work of Castaigne and Rathery.<sup>35</sup> The diagnosis of unilateral nephritis, however, can not be proven in those cases that do not come to autopsy. Naunyn first called attention to the now well recognized fact that nephritis can, and not infrequently does, exist without albumen and casts in the urine. This opinion was further elaborated by DeKeersmaecker in 1897. Tedenat<sup>36</sup> has reported cases where hemorrhage from the kidney long antedated every other evidence of urinary trouble. Many other cases have been reported where hemorrhage was the only symptom of the presence of a chronic nephritis ever found. We know that



nephritis may be bilateral, and the hematuria unilateral (Albarran,<sup>30</sup> Laurent<sup>37</sup>). So the finding of nephritis in a kidney removed for hematuria and subsequent negative findings in the urine from the remaining kidney is insufficient evidence upon which to base the opinion that this kidney is not, too, the seat of a nephritis. The following two cases which have come under my observation are of interest in this connection:

CASE I. This patient was seen in consultation with Dr. Kohlmann. White male, aged 60. Applied for treatment in November, 1908. Negative venereal history. Had had typhoid, malaria, and several attacks of grippe. He had first noticed blood in his urine 33 years previously, when he was 27 years of age. Bleeding came on without cause and without symptoms, and lasted a few weeks. Blood in the urine reappeared 23 years later, lasting 15 days. Following this last attack, his urine remained clear for 10 years. Bleeding recurred 3 months prior to his applying for treatment, and, save for a few days, had been constant since. Patient was a well nourished man, muscular for his age, and, with the exception of a slight pallor, seemed in good physical condition. Examination of his urine showed considerable blood and albumen, the latter not out of proportion to the blood present; no tubercle bacilli; no pus. X-ray pictures of both kidneys with their ureters were negative. Cystoscopy was attempted, but was unsatisfactory because of the rapid clouding of the field by the profuse bleeding. The prostatic shadow was normal. The urine was segregated without difficulty, and blood was seen to be coming from the right side. Urine from the left side was clear and, microscopically, negative.

Nephrectomy was done by Dr. Kohlmann on Dec. 12, 1908. Ether was administered. The day following operation, urine showed a few hyaline and granular casts; no albumen; no blood. On the second day following operation, urine was negative, and showed nothing further abnormal up to the time patient passed from under observation. The kidney appeared normal macroscopically, but the pathologist, Dr. Pothier, reported a chronic interstitial nephritis. An interesting point was his addition to the report that there was dilatation of the tubules with desquamation, suggesting a hydro-nephrotic kidney. No evidence of this was noticed at the time of operation, either in the pelvis or the ureter.

CASE II was seen in consultation with Dr. Gessner. Patient was a white male, aged 34. Nothing of interest in his family

history. He had never been ill previous to his present trouble, save with the measles when a child. One year previous, he had "strained his back" while lifting some heavy timber. Since that time he had been more or less constantly suffering with discomfort, at times amounting to actual pain, in the right lumbar region, and during this entire period, his urine had contained blood. There was no bladder disturbance. Cystoscopy showed a normal bladder. Clear urine could be seen coming from the left ureter; that from the right was distinctly "smokey." Both ureters were catheterized, the catheter being introduced into the right renal pelvis without meeting obstruction. Capacity of the right pelvis was 6 c.c. Both kidneys were functioning normally. Urine from the left side was clear, and, microscopically, normal. Urine from the right kidney showed blood and a trace of albumen. Tubercle bacilli were not found and a culture on plain agar remained sterile. The X-ray picture of the right kidney and ureter was negative. Patient was operated upon by Dr. Gessner on Nov. 3, 1911. Kidney was found to be large, but seemed to be healthy. After considering all the circumstances connected with the case, we decided that a nephrectomy was the best procedure, and the kidney was removed. We are prepared to discount criticism by acknowledging that more mature deliberation has made us feel that a less radical operation than the removal of the kidney would have shown better surgical judgment. We would say, however, that the patient has been entirely well since the operation, and seems no worse off for the loss of his kidney. For a few days following the operation, his urine showed blood cells, but it soon cleared, and has shown no abnormality since. The removed kidney, on section, seemed to be healthy. The specimen was sent to Dr. Duval for histological examination, and he reported as follows: Kidney weight 180 grams. Organ enlarged, succulent and somewhat edematous. On section, the cortex is in places twice its normal depth. Color pale red and markings poorly defined. Microscopic sections show the epithelium of the convoluted tubules to be swollen, granular, and to contain fat globules. Many of the cells are poorly stained and the nuclei are lost (tubular nephritis). There is no increase of the connective tissue supporting structure, nor foci of lymphoid cell infiltration. The most striking change is seen in the Malpighian tufts. Practically every glomeruli contains in the capsular space varying amounts of a pink staining homogeneous material (hyaline in character). Many of the tufts have

atrophied in consequence of pressure of this material. Others are compressed. Blood vessels are negative. Diagnosis: tubular and glomerular nephritis.

The proper line of treatment in these cases of "essential hematuria" is an interesting problem. In some cases bleeding will stop for a long time without treatment, as evidence the first case I reported, where hematuria ceased, the first time for 33 years and the second time for 10 years, although the patient did nothing more than to remain quiet during the time that blood showed in his urine. Some few years ago, I saw a negro girl who had been bleeding profusely for two months from her left kidney. She passed from under observation, to return two years later with an acute gonorrhea, and to say that bleeding had stopped shortly after I had last seen her, and had not recurred.

Potherat (Fowler)<sup>38</sup> has reported a case of 5 years standing, in which the bleeding ceased after a simple catheterization of the ureter.

Irrigation of the renal pelvis with adrenalin chloride solution, as advocated by Young, or with nitrate of silver solution has proven efficient in a fair percentage of cases, although it not infrequently fails. The following cases are of interest in this connection: The first was a female, aged 30, who gave a history of having been passing bloody urine for 20 days previous. For a few days prior to the appearance of the blood, she had a slight pain in her left side which ceased when her urine became bloody. Cystoscopy showed blood coming from the left ureter in such volume as to rapidly cloud the field. Catheters were introduced into both ureters. Urine from the right side was normal. Urine from the left side was very bloody. Catheter was pushed up into the left pelvis without meeting obstruction, and the pelvis irrigated with a 1-10,000 solution of adrenalin chloride. Bleeding ceased immediately after treatment. Five days later, urine was macroscopically clear, showing, microscopically, a few red blood cells and a faint trace of albumen. A few days later, a radiograph of the left pelvis distended with collargol was taken by Dr. Samuel, and the pelvis and ureter found to be normal. Urine has remained clear, now four months since treatment.

However, not always will bleeding respond so promptly to such simple measures. In a case of persistent nephritic hematuria seen recently in my service at the Charity Hospital, catheterization of the ureters showed blood to be coming equally

from both kidneys. Urine showed a large quantity of albumen and many casts. Both renal pelves were irrigated several times, first with adrenalin solution, and later with nitrate of silver solution, without result. Decapsulation was advised, but the patient refused any operative interference, and left the hospital.

The following case, which also failed to respond to renal lavage, is interesting from a diagnostic standpoint. Patient, a negro laborer, aged 33, applied at the out-clinic of the Touro, with the following history: six months previously he noticed that his urine was blood-colored. He had had no pain, but blood had been constantly present since. He had never been sick save for an attack of gonorrhea 5 years before. His gross urine was highly bloody, but showed no pus. Examination for tubercle bacilli was negative. Culture on plain agar remained sterile. Palpation of the abdomen gave no information. Cystoscopy showed blood to be coming from the left ureter. Bladder normal. Both ureters were catheterized. Urine from the right kidney was negative; that from the left showed considerable blood, no pus, no tube casts, and the examination for the tubercle bacillus was again negative. Radiograph of the left kidney and ureter showed no stone. Some little time after, catheters were introduced into both ureters, and a collargol picture taken by our radiologist, Dr. Samuel. This brought out clearly an interesting condition. There is some dilatation of the pelvis of the left kidney with marked dilatation of the upper portion of the ureter. The natural inference from this picture would be that there is some obstruction to the ureter below the point of dilatation. However, the catheter passes on up into the pelvis without difficulty. The pelvis was irrigated on four occasions, first with adrenalin solution, later with nitrate of silver solution, without anything more than a temporary influence on the bleeding. Operation was advised, but the patient has not yet consented, and he is still passing blood in his urine, now 10 months since the onset of the trouble. This case has all the ear-marks of an "essential hematuria," the atypical point being the dilatation of the pelvis and ureter, a condition which would not have been suspected without the collargol picture.

When rest and such comparatively simple measures as irrigation of the kidney pelvis fail in these cases of idiopathic hematuria, some form of surgical interference must be considered. As one investigates the voluminous literature of the subject, he will find that success is frequently reported to follow any form of

surgical intervention, and, again, anything short of nephrectomy will fail in a certain proportion of cases. It is only fair to say, however, that some of these cases reported as relapses were not carefully studied, and may have really been bleeding from the opposite kidney. A case reported by Nicolich<sup>39</sup> is an interesting example of a number of the well recognized surgical procedures all done on the same patient: He removed the left kidney of a woman, aged 33, for nephritic hematuria. She remained well for seven months, when she returned with bleeding from the other kidney. An exploratory lumbar incision was made down to the kidney, following which all bleeding ceased for three years. She returned, and was operated upon for floating kidney and severe pain on the right side. Nephrotomy and nephropexy were done. Following this last operation, she remained well for four years, when she returned with hematuria. A decapsulation was done, and four months later she was still well.

Decapsulation, done the first time deliberately for nephritis by Edebohls in 1898, is often efficient. Most operators combine fixation of the kidney with decapsulation when operating for hematuria complicating nephritis. However, the operation of choice in undiagnosed bleeding from the kidney, is polar section, preferably through Broedel's line. This operation gives an opportunity for careful examination of the kidney and the kidney pelvis, and nephrectomy can be done if the indications are clear. The chief objection to splitting the kidney is the danger of secondary hemorrhage. We know that this is not infrequent exploratory section. When this occurs, nephrectomy is usually after operation for stone, and it has happened following unnecessary.

But removal of the bleeding kidney should rarely, if ever, be undertaken as a primary operation, and should be reserved for those cases where simpler measures have failed to stop a hematuria which endangers life. And the operation should never be done until a careful test of kidney function has satisfied the surgeon that the remaining kidney is probably well able to carry on the demands of renal excretion.

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#### REFERENCES.

1. RAYER — *Traite des maladies des reins*, 1837.
2. SOCOLOFF — *Berlin klin. Woch.*, 1874, p 233.
3. LEGIEU — *Ann. d. mal. d. org. génito-urin.*, 1891, p. 564.
4. KLEMPERER — *Deutsche med. Woch.*, 1897, Feb. 5 and Mar. 4.

5. SCHEDE — *Jahrbuch der Hamburger Staatskrankenanstalten*, 1899, s. 235.
6. SENATOR — *Berlin klin. Woch.*, 1891, Jan. 5.
7. GUISY — *Progres med.*, No. 18, 1902.
8. GUTHRIE — *Lancet*, May 31, 1902.
9. HARRIS — *Phila. Med. Journal*, Mar. 19, 1898.
10. STEINTHAL — *Beitr. z. klin.*, Bd. liii, Hft. 3, 1907.
11. MOTZ — *Ann. d. mal. d. org. génito-urin.*, Vol. I, No. 7, 1910.
12. MALHERBE AND LEGIEU — *L'Assocn. française d'urologie*, 1899.
13. NICOLICH — *L'Assocn. française d'urologie*, 1901.
14. CHUTE — *Amer. Jour. Urology*, Vol. III, No. 3, 1907.
15. CABOT — *Boston Med. & Surg. Jour.*, May 6, 1902.
16. PICQUE AND REBLAUD — *Cong. Chir.*, Paris, 1895, p. 530.
17. ROVSING — *British Med. Jour.*, 1898, Vol. II, p. 1547.
18. SCHWYZER — *Ann. Surg.*, Vol. xlix, 1909.
19. ALBARRAN — *L'Assocn. française d'urologie*, 1900.
20. DAVIDSOHN — *L'Assocn. française d'urologie*, 1900.
21. ABBE — *N. Y. Med. Jour.*, 1891, p. 573.
22. FRISCH — *Weiner Klin. Woch.*, Vol. xxv, No. 1.
23. SEELIG — *Ann. Surg.*, Vol. xlviii, p. 388, 1908.
24. HUNNER — *Jour. A. M. A.*, Vol. I, No. 17, 1908.
25. FENWICK — *British Med. Jour.*, Vol. I, p. 248, 1900; *Clinical Cystoscopy*, London, 1904.
26. MACGOWAN — *Amer. Jour. Urology*, June, 1908.
27. WHITNEY AND CABOT — *Boston Med. & Surg. Jour.*, Vol. clviii, No. 21.
28. PILCHER — *Ann. Surg.* May, 1909; *Trans. Amer. Urol. Assn.*, 1911.
29. BROEDEL — *Hopkins Hosp. Bull.*, Jan. 1910, p. 10.
30. ALBARRAN — *Ann. d. mal. d. org. génito-urin.*, May, 1898.
31. POUSSON — *Bull. et mem. de la soc. de chir. de Paris*, 1898, Vol. xxiv, p. 590.
32. EDEBOHLS — *Surg. Treat. Bright's Disease*, New York, 1904.
33. DEKEERSMAECKER — *Ann. d. mal. d. org. génito-urin.*, Feb. 1897; *Ann. de la soc. Belge de chir.*, 1897-1898, Vol. V.
34. ROVSING — *Centralb. f. d. Krankheiten d. Harn und Sexual Org.*, 1898, Vol. ix.
35. CASTAIGNE AND RATHERY — *La Semaine Medical*, 1902, Vol. xxii, p. 273.
36. TEDENAT — *L'Assn. française d'urologie*, 1899.
37. LAURENT — *Deutsch. Med. Woch.*, 1901, No. 13, s. 193.
38. FOWLER — *Hopkins Hosp. Reports*, Vol. xiii, 1906.
39. NICOLICH — *Compte rendu 8th. session de l'assn. française d'urologie*, 1904, Vol. viii, p. 721.

## REPORT OF A CASE OF FRACTURE OF THE PELVIS COMPLICATED BY EXTRA-PERITONEAL LACERATION OF THE BLADDER \*

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ON the afternoon of July 27th, 1908, there was admitted to Bellevue Hospital a boy aged 12, who gave the following history. He stated that a few hours previously, while playing about a number of ice trucks that were loading at a pier along the Hudson river, he was caught between the hub of a wheel of one of these trucks and a platform or chute through which the former were filled. From his description—a very lucid one by the way, he being an unusually intelligent boy, it was evident that the trochanters were engaged, and the pressure exerted, a lateral one. Upon further questioning he informed us that he had voided his urine about five minutes before sustaining the injury so that the possibility of a full bladder played no part in the mechanism of the lesion sustained. The additional fact was also elicited that no urine had been passed since the injury. At the time of admission the patient, though suffering considerable hypogastric and lumbar pain and a moderate degree of shock, was fully conscious.

Careful exploration of the pelvic girdle and abdominal lumbar regions, rectal examination, percussion over the bladder area and the various movements of the extremities afforded no specific data with which to localize the seat of the traumatism. In fact, the only evidences we had were the history, the symptom complex as above noted, and the presence of a small amount of blood presenting at the external meatus. Upon catheterization, easily conducted by means of a number 12 French soft rubber catheter a few ounces of blood-stained urine were obtained and the bladder integrity was determined, at least we thought so at the time, by the introduction of at first 90 c.c. of boric acid solution, all of which was returned, and later 180 c.c., with the same result.

From these examinations and the condition of the patient

\* Presented before the Surgical Section of the New York Academy of Medicine, March, 1910. Publication of report of this unusual case has been withheld owing to the author's desire to incorporate the operation for perineal testicle—consent for this operation, however, is unobtainable.

the conclusion was reached that an operation was not at this time indicated. The catheter, however, was retained in the bladder and continuous catheterization per urethra instituted, the urine continuing normal in amount though slightly blood-stained.

At the end of about fifteen hours the catheter was expelled and it was found impossible to introduce another. The patient's condition at this time having grown worse, and as percussion would seem to indicate a well distended bladder, he was prepared for operation. Meanwhile a radiograph had been taken, the result of which however had not at this time been received.

The usual suprapubic incision was made and upon entering the pre-vesical space a large amount of urine escaped in such manner as to indicate considerable pressure. The collapsed bladder was then opened and found to be filled with blood clots, and on digital exploration an oblique valve-like laceration was found situated on the right lateral wall immediately above the internal vesical orifice. A similar exploration of the pre-vesical space demonstrated a large spicule of bone together with a number of smaller ones, the apex of the largest spicule being about one inch from the bladder wall and taking the direction of the tear in this organ, that is, from above downwards, forward and inward.

Inasmuch as the tear in the bladder was in such proximity to the internal vesical orifice, as well as in view of the edematous condition of the latter, a perineal urethrotomy was deemed advisable and a median perineal incision extending to a staff in the urethra was made, and the latter opened; but the introduction of a perineal drainage tube into the bladder was found to be exceedingly difficult owing to the edema, and the patient's condition at this time necessitating an intravenous infusion of salt solution, the perineal operation was discontinued and suprapubic drainage employed for the first two days, at the end of which time perineal drainage was effected, and the former discontinued. No attempt was made at suturing the bladder and the bone area was not disturbed, as it was my belief that a subsequent operation would be necessary and his condition at this time did not warrant refinements but did most urgently demand drainage not only of the bladder but of the prevesical space and the area of bone comminution. The latter was drained in the following manner:

By means of blunt dissection a pair of uterine dressing forceps was introduced from above downward through the prevesical space behind the symphysis, emerging below through the perineal



wound, and a gauze drain was grasped and drawn from below upward until the bone region was reached.

Immobilization of the pelvis by strapping was not attempted as I did not regard it feasible in view of the nature of the subsequent dressings and the character of the injury being such that considerable pressure would be exceedingly likely to accentuate the latter.

From this time the patient's condition progressed uneventfully, both wounds healing kindly, and at the end of nine weeks he was walking about the wards, and at the present, a period of nineteen months intervening, except for the scars resulting from the incisions, the boy presents absolutely no external evidence of the very grave injury sustained by him. He does, however, show a rather unusual condition, which was observed at the time of his admission, and which he stated was present as long as he could recall. This proved to be the perineal type of maldescent of testes. But inasmuch as the consent of the boy's parents was unobtainable no attempt at restoration of this organ has been made.

In the two radiographs shown in the accompanying plate the upper was taken at the time of admission to the hospital, the lower about fifteen months later. In the former will be noted a dart and dotted line which indicates the site of the long spicule of bone and the shadow between it and the pelvis proper represents the area of the bone comminution. The lighter area between this and the darker shadow immediately below will give a fairly accurate idea of the extent of separation of the fragments.

The obturator foramina are indicated also by darts, and as will be observed the foramen on the right side of the plate is completely obliterated, owing to the displacement of the inner portion of the horizontal ramus of the pubis, behind the ramus of the ischium. One also sees very distinctly the relative tilting of the femur on this side by comparison with the same side on the plate below.

In the lower radiograph the remarkable reparative power of this patient is well shown. Here, as indicated by the small letter *b*, the space between the fragments and the pelvis proper has been completely filled in with new bone, and the general readjustment of the pelvic girdle is very apparent.

From the history, findings and progress of this unusual case it would appear that it is a fracture of the horizontal ramus of the pubic bone at or about its junction with the ileum; that

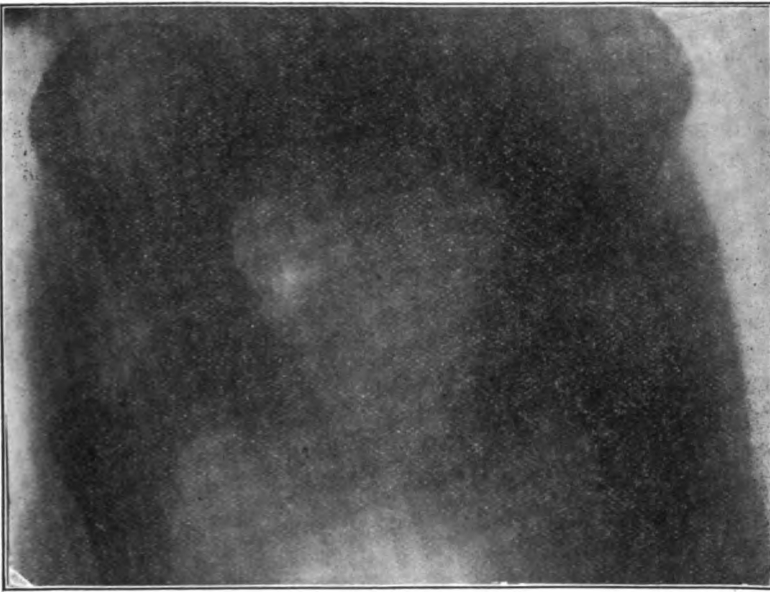


FIG. 1

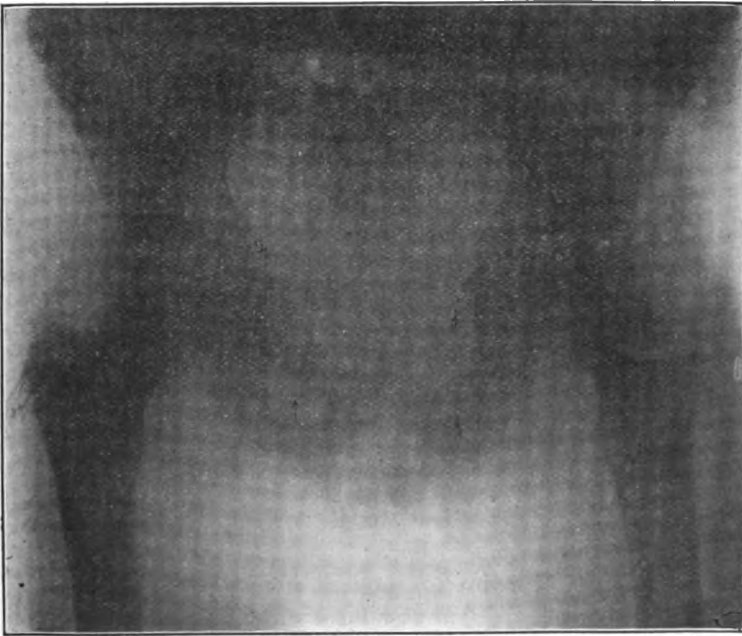


FIG. 2

it verifies the experiments of Malgaigne in demonstrating that such injuries may be the result of lateral as well as antero-posterior pressure. That it is not a rupture of the bladder as generally occurs, but a true laceration, the mechanism probably being that at the height of greatest pressure, the long spicule of bone as represented in the accompanying plate punctured the bladder immediately above the vesicle neck, and that upon removal of the great compressing force the pelvis retracted sufficiently to withdraw this bone outside the bladder cavity; that the peculiar valve-like character of the vesical wound rendered this organ practically a closed cavity until it had been hyper-distended sufficiently to draw the lips of the wound apart and permit the escape of fluid in the space of Retzius, and that for this reason the so-called bladder integrity test was misleading in this case, 90 c.c. having been introduced at first and later 180 c.c., all of which was returned.

Upon investigation of the hospital records for the past fifteen years I find two cases of fracture of the pelvis with rupture of bladder, which may serve to shed additional light upon this point. Both cases were intra-peritoneal ruptures and in each an effort was made to determine by fluid distention whether the organ had been injured. In the first case 150 c.c. were introduced, all of which reappeared. An abdominal section disclosed the fact that peritoneal adhesions had practically closed a large transverse tear in the posterior bladder wall. Injection of fluid in the other case gave different results. At one time little or no fluid returned, while at another, considerably more was withdrawn than had been introduced. Here upon opening the abdominal cavity it was seen that practically a new cavity had been formed made up of fibrino-plastic exudate surrounding the tear in the bladder wall, so that the fluid upon entering the bladder cavity escaped through the rent in its wall and very little returned; while after the catheter was inserted a little farther it entered this new chamber and consequently more fluid was recovered than had been introduced.

All of which goes to prove that too much reliance should not be placed upon this test, as it is likely at times to lead to decidedly erroneous conclusions.

An additional point of interest in this rather unusual case is the question as to just what influence the developmental state of the patient's pelvis at this age had in the mechanism of the injury.

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## ILEO-VESICAL AND APPENDICO-VESICAL FISTULAE COMPLICATED BY STONE IN THE BLADDER.

. By PAUL M. PILCHER, A.M., M.D., Brooklyn, N. Y.

**T**HE patient, a gentleman thirty years of age, consulted Dr. A. T. Bristow of Brooklyn, in December, 1903. Four years previously he had had an attack of appendicitis of grave moment. The attack at that time was considered to be one of renal colic. Ten months after this the patient began to pass small quantities of blood in his urine with occasional attacks of vesical spasm. One month later he began to pass bubbles of gas with his urine, invariably with the morning urination. One month later had a pain in the right hypochondrium, which was interpreted as ureteral colic, and he passed two substances from his bladder resembling lumbricoid worms in shape, which were supposed to be ureteral casts. They were decolorized blood clots. The patient improved with bladder irrigation. Blood and pus disappeared and the pneumaturia had ceased. He gained twelve pounds in weight. On examination with a searcher a small stone about the size of a chestnut was discovered, but this did not explain the ureteral casts or the pneumaturia. No gas producing bacilli could be demonstrated. Cystoscopy was done by the late Dr. Tilden Brown, but nothing abnormal could be discovered in the bladder wall, the small stone being seen on the base of the bladder. There was no cystitis. An X-Ray demonstrated the right kidney and ureter to be normal.

A suprapubic operation was done by Dr. Bristow, and the stone removed. The bladder was examined, but no indication of a fistulous opening was discovered. Bladder wound closed, primary union.

Six months later the pneumaturia returned for forty-eight hours, then ceased. Two months later it recurred. That was followed by numerous irregular recurrences of pneumaturia. On Sept. 4th, 1905, he had a very severe attack of pain in the right iliac region. On the third day pain ceased and was referred to the bladder. His urine was stringy with pus and soon blood appeared. This was evidently an acute attack of appendicitis with rupture into the bladder. The pneumaturia recurred. In November, 1905, the late Dr. Tilden Brown catheterized both ureters, and colon bacilli were demonstrated in all of the specimens.

In January, 1906, he had another severe attack of pain in

the right side, with chills and high fever. This illness lasted ten days. The patient passed some gas again. In May, 1906, after severe physical exercise he passed gas in quantities, but without pain. In June, 1906, passed a quantity of blood and pus in his urine, but there was no pneumaturia. On January 29, 1907, he had another attack of inflammation in the lower abdomen, with an increase in the amount of pus mixed with the urine. The urine was clear in the day time, but thick with pus every morning, and the urine contained vegetable fibers, showing that there was some communication between the intestine and the genito-urinary tract. Then a fecal fistula was established without question, and was shown by means of a cystoscope to be one inch above the right ureter opening. At first the materials would take five or six hours to appear in the urine. There was at no time any cystitis, as demonstrated by the cystoscope on three occasions.

Two years ago the patient presented himself, passing gas per urethra regularly. Food taken would be passed in part by the urethra fifteen minutes after its ingestion. Considering the history, a diagnosis was made of a previous suppurative appendix attached to the bladder, rupture of the appendical abscess into the bladder, and the establishment of an incomplete appendicovesical fistula at first, which later became dilated through usage, and the establishment of a free communication between the cecum and the intestine.

An operation was done by Dr. A. T. Bristow, assisted by the writer. An abdominal section revealed the appendix attached directly at a point opposite in the bladder where the fistulous tract opened into it. The appendix passed directly across the pelvis from the cecum to the bladder. The appendix was ligated at the cecal end, and again at the vesical end, each stump being everted. A probe passed through the appendix demonstrated it to be freely open throughout its entire extent. We felt that we had accomplished a closure of the fistula. Four days after the operation the patient developed a marked intestinal paresis with reverse gastric peristalsis, and it was accompanied by a violent vomiting and abdominal distention. So great was the calamity that the abdominal wound was torn open. Under appropriate treatment the patient recovered with a ventral hernia. As soon as the normal peristalsis became re-established it was found that gas was again present with the urine, and within two weeks after the operation, fecal matter was found again in the urine.

For two years the condition persisted and became worse. *Twelve minutes after eating grape fruit, undigested portions of pulp would be passed per urethram*, also small pieces of olive or other hard substances would be passed per urethra twelve or thirteen minutes after ingestion. Cystoscopy in connection with an X-Ray examination revealed the presence of an ileo-vesical fistula near the lower end of the ileum. The X-Ray showed that the patient emptied his stomach of a full bismuth-buttermilk meal in fifteen minutes, which is not at all abnormal.

A second operation was undertaken. The ileo-vesical fistula was easily demonstrated, and a purse string suture passed through the bladder wall around the opening and tied. The intestine was cut loose from the bladder and showed clean cut intestinal edges without any round celled infiltration or induration. It was in the lateral wall of the intestine about one-half an inch in diameter and was easily repaired. The vesical portion of the fistula was inverted and reënfenced by interrupted chromic gut sutures, and an omental flap was sutured over the opening. A drain was inserted down to the omental flap. Three days after the operation the violent intestinal paresis recurred with fecal vomiting. This was controlled by an injection into a vein of 40 cc. of warmed Hormonal, normal peristalsis being reëstablished by this means within four hours. The patient has made a good recovery, and was demonstrated to some of the members of this Association on Tuesday.

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## DEPARTMENT OF SEXOLOGY

The Editors with the Collaboration of Dr. C. P. Oberndorf.

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### THE STERILIZATION OF DEFECTIVES

Although castration and vasectomy of the feeble-minded, criminal and defective for the prevention of procreation has long occupied the attention of the heads of institutions dealing with such classes in the Western States, notably in Indiana and Kansas, and has led to legislation in many others very recently, it is being brought more prominently to our notice here in the East through the New Jersey legislation and the recent introduction of a bill of eugenic purport into the New York legislature.

This bill, which has been presented in both the Senate and Assembly (*Survey*, Mar. 23rd, 1912), calls for the addition of four sections to the public health law creating a board of examiners, consisting of three members to be appointed by the governor, one a surgeon, one a neurologist and one a practitioner of medicine. Each must have had at least ten years' experience in the practice of his specialty. The purpose of this commission is to examine the feeble minded, epileptic, criminal and other defective inmates in the State hospitals for the insane, State prisons, reformatories, charitable and penal institutions and to perform operations to prevent procreation by such persons when, in the board's judgment, their offspring would inherit a tendency to crime, insanity, etc. Persons so examined and to be operated upon may be represented by counsel.

Sharp (*Journal of the American Medical Association*, Dec. 4th, 1909) lauds the procedure of vasectomy in preference to the segregation of these individuals on the ground that the latter method is more costly, less certain and means "life imprisonment for a large army of men and women who should be given the opportunity to enjoy life and liberty." He mentions the castration of 48 boys at the suggestion of the Superintendent of a Kansas Institution for the feeble-minded, but considers that operation productive of too grave nervous and mental disturbances, in addition to being more serious surgically than vasectomy. Unfortunately the fate of the 48 individuals castrated some 14 years ago in Kansas has not been followed, though by chance I happened to see one who was admitted to the Manhattan State Hos-

pital about one year ago and who at that time from his own report did not believe that the operation had benefited him.

Sharp had in 1909 performed the operation of severing the vas on 500 male inmates of the Indiana Reformatory and concludes that it not only acts as a protection to the community, but has a decidedly beneficial effect upon the mentality and morality of a very large percentage of the individuals. He remarks paradoxically that "he heartily endorses castration as additional punishment for certain offences." This attitude is certainly at variance with the fundamental principles of such operations, for while sterilization of criminal defectives should be available as a eugenic measure in certain cases, it should in no sense be regarded as a punitive measure but rather as a prophylactic sacrifice on the part of the defective individual to society at large. The injustice of *punishing* in such a manner a defective for a deficiency over which he has no control savors of the middle ages and could be paralleled by the enucleation of the eye for "Voyeurs" or amputation of the penis for exhibitionists.

The problems actually encountered in the execution of a sterilization law have been vividly revealed through the observations of Oberholzer ("Kastration and Sterilization von Geisteskranken in der Schweiz." Von Dr. Emil Oberholzer, *Juristisch-psychiatrische Grenzfragen*, Vol. 8 No. 1 to 3) among the insane in the Asylum of Burgholzli, Switzerland. He reviews 19 cases, 15 women, of whom four were castrated and four sterilized, and four men, of whom three were castrated. One woman was first sterilized and later castrated. The other cases are reported on account of the analogous conditions which existed although no operations were undertaken.

As Oberholzer's cases are the first where the details are presented, the individual's rights carefully considered and as in many cases the end results are recorded, an abstract of some of them (freely translated from Rudin's critical review, *Archiv für Rassen-und Gesellschafts-Hygiene*, Vol. 8, No. 6, page 821) seems worth while, for they admirably demonstrate the delicacy of the social aspect of the procedure.

Among the women infanticide figured four times as a consideration. In one case, a feeble-minded girl, who had frequently indulged in sexual intercourse and who had been previously impregnated by her brother-in-law, was "assaulted" (she stated that she was unable to resist because "she had a basket in one



hand and a piece of bread in the other") and subsequently delivered a child which she drowned in a basin of water. As she could not be punished on account of her mental weakness, she was sent to the insane asylum where sterilization was proposed.

The commission having jurisdiction over such cases advised against such a procedure. While it admitted the slight danger and great advantages of such an operation and also that "the mentally and physically defective progeny which as a rule is born by a feeble-minded woman would be prevented," the possibility for intercourse would not be destroyed and that "it is the duty of the State to protect the girl against future assaults." It concludes that the operation "would be permissible if only the question of infanticide were at stake, but it is necessary to go beyond that, namely, to insure the protection of the victim from prostitution by placing her in a closed institution." Oberholzer comments that if that alone be the object of the State, the girl might be adequately cared for in the "poor house," but that impregnation could only be assuredly avoided by sterilization.

In spite of the adverse opinion of the commission the court was willing to permit the operation, provided that the patient, her father and State Board of Guardians for the feeble-minded would consent. While the first two assented, the committee of guardianship refused on the grounds that it inflicted "unnecessary hardship upon the patient"; that mental deficiencies are not necessarily transmitted to one's descendants; that detention in the poorhouse would answer all requirements and that if the patient fully appreciated the nature of the operation she might flatly refuse. In regard to this last phase of the problem Rüdín pertinently remarks that while the refusal might be made by the individual if she fully realized the purport of the operation, her opinion would be inconsequential on account of her defective judgment.

As to the transmission of defects Rüdín asserts that even if the chances were the same in normal and defective persons, the argument in this particular case is irrelevant as the object of the sterilization was the prevention of infanticide and criminality. To cap the climax the overseer of the poor maintained that it did not fall within the domain of the "poorhouse" to care for defective criminals and so the patient remained in the insane asylum.

In another case, a fifteen-year-old girl, a "moral idiot" who since the age of thirteen had shown sexual abnormalities (incest

with her brother) and had acquired a venereal infection, no operation was undertaken in view of the grave results which it was thought might follow castration at the age of puberty. While sterilization might have been undertaken to prevent conception, this was apparently not considered, for the castration would have been undertaken merely with the idea that it might lessen the patient's sexual cravings. It is suggested that in a case of this kind, an unilateral oophorectomy with transplantation of the other ovary or sterilization with some plastic operation for narrowing the vagina with the idea of making intercourse impossible, might have been undertaken.

In connection with this case Oberholzer points out that the operation could have been performed if the guardian of the child had desired it, notwithstanding the physician's caution as to possible deleterious results. He asks what justification the physician and the guardian would find for the operation if in the hypothetical case that this individual, after reaching majority and being a free agent (for as a moral imbecile she would not be insane under the law) should resent her sterility and impotence and seek legal redress by suit against the instigators and performer of the operation.

All of the four women in whom castration was undertaken were confronted with the prospect of life-long confinement and all were released for shorter or longer periods following the operation. The physical disturbances which might have been expected did not manifest themselves in any of them. The first case died of a purulent peritonitis which followed the laparotomy; the second seemed to improve temporarily but the former states of excitement recurred; in the third there was no effect on the mental state and in the fourth there was a recurrence of the psychosis which necessitated her return to the asylum, but in 1908 she was again released, and has not been readmitted since.

The condition for which surgical interference was advanced and the results of the operation in the four male cases is as follows:

*Case 1.* A man, who on account of uncontrollable sexual longings and perversions, eagerly desired operation, submitted to castration, which resulted not only in enabling him to refrain from perverse practices (especially homosexuality) but from other breaches of the law of which he had previously been guilty. Shortly after castration, however, an inexplicable, though tran-

sient anxiety state, with vague ideas of reference, developed in the patient.

*Case 2.* An alcoholic delinquent, with very strong sexual abnormalities, was castrated at his own request, but the operation was ineffectual in diminishing his sexual phantasies. He was permitted to leave the hospital on the ground that he was no longer a social menace, but his psycho-sexual desires continued unabated. Failure to have erections in response to psycho-sexual stimulation and also his impotency were a great and constant source of irritation to him.

*Case 3.* A worthless, criminal imbecile permitted the operation for testicular neuralgia. Notwithstanding his comparatively advanced age of 34 at the time of the castration, physical changes soon occurred so that at the age of 41, he had the appearance of a youth of 20, with a feminine distribution of adipose deposits, which persisted in spite of a generalized emaciation, and with a general diminution of the hairy growth. The operation in no way affected his mental state, for although physically impotent, his psychic cravings were not lessened. He indulged in copulation with his mistress, but, curiously enough, is said not to have regretted the operation. Some years after the operation he developed hemorrhages from the urethra every six weeks, with general physical and mental disturbances such as women experience at the menstrual periods.

*Case 4.* In this last instance, which concerned a sexually abnormal, ethically defective youth, whom it was found necessary to admit to the insane asylum at the unusually early age of eight and in whom a gloomy prognosis was offered, no operation was undertaken because his offenses against society had not been sexual transgressions (robbery). In spite of the psychiatric pessimism and the failure to undertake castration, this boy subsequently served in the Swiss army, abandoned his criminal career and has since been working industriously, thoroughly ashamed of his former career.

A record of this kind demonstrates most forcibly that maturity of the intellect, which is sometimes retarded, may do much to ameliorate severe ethical deficiencies and for this reason alone castration should not be undertaken before the individual's mental development is fairly firmly fixed. Moreover, it should cause us to be more critical when we read of marked mental improvement attributed as a result of castration.

In concluding his article Oberholzer states: "I wanted to show that where the prevention of procreation is desired, sterilization is the only justifiable procedure, for aside from the advantages to humanity at large, it means an abstention from crime and the prevention of unhappiness and misery for future generations. Furthermore, the bar must begin to recognize the increasing value to the community of a healthy posterity and to evince a greater regard for the right of the child itself to sound health, which may be accomplished by the legal recognition of sterilization. Legislation will also best establish the restrictions for its application and prevention of abuse."

A scrupulously unbiased statement of carefully followed cases of this kind from one who evidently believes in the restricted value of the operation for racial improvement, is more enlightening than the statistical record of thousands of incompletely investigated instances, where the indications and results have not been determined, but it also emphasizes that the operative method of eugenics will not entirely solve our problems. Certainly in very many instances the parents of the individual considered as a subject for sterilization would not have fallen within the realm of surgical eugenics at the time that the defective offspring was conceived — unless the indications for interference be extended far beyond our present suggested limitations. As a matter of fact, at the present time, with given parents of a definite constitutional make-up we can do little more than predict that the offspring is likely to inherit a certain proportion of his parents' traits.

What is required at the present time is not so much the precipitated enactment of laws which may subsequently be repealed, found inadequate or allowed to fall into disrepute, but rather State appropriation for the investigation of the still nebulous problems of heredity, and a more exact determination of the type of individual, in whom the more strenuous methods for the prevention of reproduction will represent a eugenic advance.

# REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman  
and Walter J. Heimann.

## ZEITSCHRIFT FÜR UROLOGIE.

SUPPLEMENT No. 2, 1912.

(Trans. of the German Urological Congress.)

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### 1. The Significance of Lipoids in Urology.

In searching for a method of investigating the secretions of the genital organs *C. Posner* first turned his attention to the use of the dark field illumination. This procedure which had been shown to be of great utility in the detection of the spirochete, seemed to be of little value for the purposes in question. The polariscope, however, that had already been employed by a number of authors in their histopathological studies, proved to be a very valuable adjuvant to the known means of studying the secretions of the genital organs. It is particularly in the detection of lipoids, fatty substances that differ from true fat in that they are doubly refractile, that the polariscope has given us valuable information. In other respects these so-called "lipoids" present a number of reactions which are also possessed by true fat. Thus the typical tinctorial reactions that characterize fat and which are obtainable with dyes (such as sudan, scarlet red and osmic acid) are also characteristic of the lipoids. When lipoids exist in the urinary sediment the polariscope gives a typical picture. Everything disappears except luminous droplets or spheroids that are exceedingly bright and prominent when the instrument is properly adjusted. At the present time, we do not possess any chemical method which is so definite in demonstrating the presence of these substances as the polarization procedure.

The finding of lipoids must be regarded as indicative either of the presence of normal or abnormal cell products. It is known that the healthy prostate elaborates these substances; and that the lipoids in the urinary sediment may be derived from that organ. On the other hand, disturbances in metabolism and degenerative changes such as may occur in a number of organs may be instrumental in the formation of these bodies. Thus in the kidney, it is more than likely that many of the changes which have heretofore been regarded as fatty degeneration, must be interpreted, in the light of investigation with the polariscope, as indicative of lipoid degeneration.

The differentiation of the source of the urinary lipoid is not difficult. The prostatic lipoids will occur in the urine after prostatic massage, will be associated with the presence of anyloid bodies and prostatic epithelium. They are apt to appear in the leucocytes filled with granules and must be sought for in urinary filaments. The renal lipoids, on the other hand, appear partly as free large droplets and partly as inclusions in casts. In cases of nephritis, renal epithelium may be found to contain them.

Having excluded the kidney as a source in the examination of a given specimen, the finding of lipoids in a case of urethral disease will be of value in so far as the involvement of the prostate is suggested. Thus the author has frequently been unable to diagnose the participation of the prostatic gland, from their presence in urinary filaments.

When the urine contains these substances in cases of nephritis, it will not be amiss to conclude that rather extensive destruction or rather impairment of the cell-life of the parenchyma has occurred. These products of degeneration seem to be formed when the nephritic process is intense, or is acute; when it leads to uremia, or when it is of a progressive chronic nature. It seems that the "large white" kidney is particularly apt to eject lipoids into the urine. It is true that the absence of these substances is in no way indicative of the existence of intact kidneys; but a positive finding is of value in suggesting renal impairment.

As for the utility of the demonstration of these substances in the urine segregated from the healthy side, in cases where nephrectomy is indicated, it must be remembered that the healthy organ is often secondarily affected by a toxic nephritis; and that this affection is apt to disappear after the removal of the diseased kidney. Therefore the presence of lipoids in the supposedly healthy side, although it does not contraindicate nephrectomy, does militate somewhat against our giving a favorable prognosis.

## 2. The Prostatic Secretion.

*Rapaport*, calls attention to the fact that what was formerly regarded as being lecithin, is now known to be of lipoid nature. With the proper chemical tinctorial method, it is possible to show that not

only degenerate cells, but also well preserved leucocytes and intact epithelial cells contain lipid substance. Thus the method of Ciaccio seems to be specific. After preliminary fixation of a tissue in chromic acid salts, the lipoids become insoluble in alcohol. In a series of excellent illustrations, the author shows how the lipid granules stain with scarlet red, both in the normal prostatic epithelium and in prostatic adenoma.

### 3. The Clinical Significance of Fat in the Urine.

According to *Theodor Cohn*, fat urine may be divided into lipuric and chyluric, depending upon whether the fat appears in coarse drops or emulsified as in chyle. Physiological examination points to the similarity of chyle and lymph, the chyle only acquiring its turbidity after a meal. Indeed, in the literature, cases of chyluria are reported in which the cloudy appearance was absent, although the characteristic constituents, such as cholesterin and lecithin were present. Cohn reports two cases of endemic chyluria. One of these concerned a man 31 years of age, who voided a typical fatty urine containing large numbers of granules, some of which were free, others intracellular. Shortly after the first examination, it was possible to feel a tumor of the right kidney, presumably a hypernephroma. It seems that chyluria has not been described as an early symptom of renal tumors.

In the second case, of a boy, there were attacks of fever, followed by attacks of chyluric urine, the symptoms subsiding completely after a few months. For the past three years, the patient has been completely free from this condition.

### 4. The Value of the Phloridzin Method of Functional Diagnosis.

*Max Roth* discusses in detail the criticisms that have been made of the phloridzin method, and points out how its utility can be correctly estimated. Thus it is important to obviate, as far as possible, the occurrence of reflex polyuria. Towards this end, patients are instructed to refrain from taking any fluid for from 12 to 15 hours before the examination takes place. If reflex polyuria takes place, in spite of this precaution, it is usually but of moderate intensity, and usually disappears if the catheters be allowed to remain *in situ* for a sufficient length of time. The following rules must be followed in correctly estimating the percentage of sugar when reflex polyuria exists:

First, when the polyuria is unilateral, the corresponding correction must be made for the more actively secreting side, by comparing amounts collected from both kidneys. Second, the reaction will appear sooner in the urine of the better kidney. Assuming a theoretical case, in which, because of polyuria, the percentage is greater on the affected than on the normal side, the presence of the larger amount of urine will indicate to us at once the reason for the inverted finding. Third, the amount of urinary flow that escapes beside the urethral

catheters, can be estimated if the bladder filling-fluid be evacuated before the collection of the specimens is begun. Fourth, the coincident use of an injection of indigo-carmin, will further aid us in the proper interpretation of the findings.

The author's conclusions may be summed up as follows:

1. A normal kidney excretes saccharin within 20 minutes after the injection of 0.01 gm. of phloridzin: in rare cases, the excretion is delayed, the reaction appearing after 25 minutes.

2. If the reaction for sugar appears later than 25 minutes, it may be assumed that the kidney is diseased. A comparison of the amount of sugar excreted by the two sides gives an indication as to the degree of the disease.

3. However, we cannot conclude that we are dealing with a normal kidney from the fact that the reaction appears before 20 minutes have elapsed.

4. In any given individual, and after like doses of phloridzin, marked variations in excretion may occur. The time of the appearance of the reaction, the amount of excreted sugar, and the duration of the secretion may all vary at different times. The inconstancy of the test, seems to depend upon transitory retardation of the urinary flow, or upon changes in the food intake.

5. A minimal sugar excretion occurs in the fasting state, or on fatty nutriment; on an ordinary carbohydrate regime, the amount is 5 or 6 times as great; after an ingestion of dextrose, an increase equivalent to 11 times that secreted on a fasting diet has been observed.

6. The percentage of sugar excretion does not vary more than 10 per cent. in a case of normal kidneys; however, in rare instances, the variation may be 20 per cent.

7. It is unnecessary to estimate the total quantity excreted.

8. Disturbances in the excretion of phloridzin-sugar are either transitory or permanent. If these occur, it is best to repeat the test, although it may be difficult to decide with which variety we are dealing. Persistent impairment in excretion is of importance in every case of nephrectomy.

9. Good elimination of sugar indicates a good prognosis as regards the renal function.

10. The phloridzin method is more delicate than the indigo-carmin procedure.

11. The phloridzin values need not correspond to the Delta values obtained in cryoscopy for they have not the same significance.

## 5. The Value of Vaccine Therapy in Urology.

*Hans Reiter* insists that if we follow a schematic routine method in vaccine therapy, we will be disappointed with our results. He emphasizes the importance of being acquainted with those phases of



immunity and anaphylaxis that relate to the reaction of the body to vaccine.

Regarding a vaccine in the light of an antigen, it is well to remember that the injection of the second dose is followed by the liberation of endotoxins; for the anti-bodies that have previously been formed combine with the antigens. This leads to disintegration with a setting free of intensely poisonous substances that may produce a deleterious effect on the organism. The intensity of this poisonous action depends upon the amount of toxins present at any particular moment. We can influence the amount of harmful substances that will be present, both by properly selecting the quantity of antigen given at the second injection, and also by electing such a time for this procedure when anti-bodies have been formed in but slight amount. Thus, if we allow four to eight days to elapse before giving the second injection, only a small amount of anti-bodies will be present, the combination with antigen will produce but a minimal amount of poison and the anaphylactic shock will be avoided. On the other hand, if repeated injections of antigen be given, the quantity of anti-bodies may be very large, so that a rapid liberation of poison may be expected upon the entry of an antigen. According to the experiments of Friedberger, it would seem that the twelfth to the eighteenth day after the injection is the most unfavorable time for a second treatment.

An interesting and useful application of a vaccine injection is its diagnostic employment in gonorrhea. Where the physician's acquiescence to the establishment of marriage relation is solicited in cases of doubt, the author's procedure is as follows: 0.8 c.c. of gonococcus vaccine A-10 (1 c.c.=50,000,000 gonococci) is injected in the afternoon, and the patient is advised to watch closely for the occurrence of any local or general reaction. Twelve to twenty hours later, that is on the following morning, the patient voids his night urine, and a careful examination of any urethral discharge and of the urine for gonococci is made. Only a positive result is of value. If gonococci are absent, the procedure is repeated three or four weeks later.

The author's experience with vaccine therapy is based on the work of some two and a half years, 25 per cent. of his cases having been urological. When the proper precautions were followed, no untoward results of any kind are observed. In his summary, the author concludes as follows:

1. Vaccine therapy must not be used as the sole method of treatment in affections of the uro-genital tract.
2. As an adjuvant, however, of our known therapeutic procedures, it produces a very considerable shortening of the duration of the disease in 60 per cent. of the cases, and should therefore be applied in all localized infections.
3. When employed at the proper moment, vaccine therapy

will occasionally make surgical procedures unnecessary. It rarely influences an acute gonorrheal urethritis in a favorable manner.

4. The method may be employed in many cases as a diagnostic aid particularly with a view to determine the right to marry.

5. When applying vaccine therapy, the following rules are recommended:—(a) The presence of general infection must first be excluded: (b) Autogenous vaccines give the best result; indeed, in the case of coli infection, such vaccine is absolutely necessary; whenever an autogenous vaccine cannot be prepared, the polyvalent variety should be employed: (c) It is best to begin with small doses (in gonorrheal infections, 1 c.c.=50,000,000 gonococci) and then gradually to increase the dosage up to 500,000,000: (d) Any routine method of injection, should be avoided: (e) All doses should be so calculated that the negative phase lasts no longer than 24 hours, for if it is prolonged the dose was probably too large: (f) An increase of dosage is permitted when the action of the preceding dose was too slight: (g) We must not repeat the injection, as a rule, until 5 days have elapsed. The larger the dose, the larger must be the interval.

#### 6. Stenosis of the Urethra in Bilharzia Diseases.

*Edwin Pfister* avers that although the non-gonorrheal causes of urethral stricture, such as tuberculosis, congenital malformation and syphilis have received considerable attention at the hands of many authors, it seems that the pathological changes, induced by Bilharzia disease, are but little known. The favorite site for Bilharzia strictures is the *pars prostatica*. For the posterior urethra, and the trigone are the most important portals of entry for the parasites, the eggs being most frequently laid down in these situations. As the disease progresses, the prostatic urethra is regularly invaded. Here too, we see the typical ulceration, the formation of granulation tissue, the deposition of urinary salt, and the formation of concretions. Because of the particular tendency to the formation of polypoid granulations, the Bilharzia strictures present a pathological picture quite different from the post-gonorrheal form, the latter being for the most part, a cicatricial or callous change.

As for the stenoses, these may be simple or multiple, they may involve a segment or the whole circumference of the urethra. More rarely, the *pars membranacea* is involved; still more rarely, the pendulous urethra may be invaded. However, we not uncommonly encounter an infection of the whole urethra, leading to the so-called "induration en masse" or "induration plastique," the channel becoming converted into a rigid tube. Indeed the *corpora cavernosa* too may become affected. In such cases, the whole urethra may become stenotic and totally obliterated, numerous urinary fistulae may become established, and the penis may degenerate into a hard solid mass.

#### 7. Actinomycosis of the Urinary Organs.

Although *Theodor Cohn* had already reported a case of primary

pyonephritis actinomycotica in the *Berliner Klinische Wochenschrift*, 1911, No. 33, his search in the literature made it evident that the bladder has never been found to be the primary site. The author reports the first authentic case of actinomycosis of the prostate. Pure cultures of the actinomyces were obtained both from the bladder urine as well as from the prostatic pus.

#### 8. Total Extirpation of the Bladder with the Prostate and Vesicles.

An interesting and successful operative recovery was demonstrated by *L. Moszkowicz*, in the case of a man 59 years of age, in whom the whole bladder, with the prostate and seminal vesicles had been removed 35 days previously. The patient presented himself with a tumor practically involving the whole bladder, with marked dysuria, intense urgency, the urine being voided at intervals of 5 minutes. Although the establishment of a suprapubic fistula seemed indicated at first, the exposure of the bladder wall showed that such a procedure would have been futile, inasmuch as the incision would have penetrated carcinomatous tissue. The author therefore decided to implant the ureters into the sigmoid flexure. Twelve days later, the wound had healed, and the patient was able to be about. The retention of disintegrating carcinoma masses in the bladder, and the accumulation of foul secretion in its cavity, produced such an intense reaction that the patient consented to the attempt at total removal of the organ. The peritoneum was opened, a transverse peritoneal incision over the middle of the bladder was made, the peritoneum detached by blunt dissection, and the liberated flap of peritoneum was sutured to the anterior parietal layer of peritoneum. By the filling of a small gap with omentum it was possible to exclude the whole bladder, and to perform the rest of the operation in an extraperitoneal fashion. Three and a half weeks after the total removal of the organ, the prostate and the vesicles, the patient was in excellent condition, his urine being voided 3 or 4 times daily through the rectum. Four and a half months after the implantation of the ureters into the sigmoid there was still no evidences of renal infection.

Referring to the technic of the implantation of the ureters into the sigmoid, the author advises the following method:

A small incision is made into the sigmoid and a fold of mucous membrane is brought out of the wound with an artery forceps, the edge of the cut ureter being attached to it with a single catgut suture. On releasing the intestinal mucous membrane, the ureter is drawn into the lumen of the gut, the intestinal incision is then narrowed by a few sutures, and the ureter buried according to the Witzel method. Finally a flap of peritoneum is left adherent to the ureter, is snugly fitted to the intestinal wall, thus assuring against the likelihood of the escape of intestinal content. The author's technic has the advantage of eliminating all sutures of the ureter itself, except a single catgut stay,

the peritoneal flap acting both as a retainer as well as a protection for the gut.

9. The Biological Relation Between the Prostate and the Genital Glands.

The most important points in this paper, by *Götzl*, have already been abstracted in the *Journal*, March 1912.

10. The Therapy of Incontinence of Urine in the Female.

*L. Casper* believes that uncontrollable urination is either the result of some local disturbance or is of nervous nature. As for the cases in which the local condition is at fault, the author wishes to call attention particularly to the group presenting no evidence of external injury. In some instances, either as the result of forcible dilatation by the passage of a large stone or tumor masses, or as the result of instrumentation, the vesical sphincter may have lost its tonicity and its power to close may have become impaired. Then too, after severe labor, after the passage of a large childhead, the urethral muscles may have become severely injured. Large myomata, retroflexion of uterus, and most commonly prolapse, may so distort the vesical sphincter that it becomes functionally inadequate.

The large number of procedures that have been devised to cure these conditions bears eloquent testimony to the fact that many of them fail to bring about a cure. Altogether, the results are not very satisfactory. As for the paraffin method, *Casper* believes that this is too dangerous to be recommended. He advises a new procedure, namely cauterization of the internal sphincter, under the guidance of the eye, through the operating cystoscope, 2 or 3 thorough eschars being produced at the transition of the urethra into the bladder. In this way, a cicatricial contraction of the closed ring muscle is produced. In the two cases reported by the author, one and four sittings were given respectively. In one case, there was a recurrence after 4 months, which was favorably influenced by one treatment. Doubtless, there are many cases which will not yield to this treatment. Thus it would be useless to attempt this method in extensive prolapse of the anterior vaginal wall.

Even in enuresis nocturna, which may be regarded as due to a spasm of the detrusor muscle, *Casper* has obtained good results.

In the case of a girl 16 years, with whom all the usual methods failed, cauterization of the bladder promptly relieved the condition.

11. Hematuria in Appendicitis.

In a review of the literature, *A. von Frisch* finds that the explanation given for hematuria associated with appendicitis, is not always the same. Thus, of 13 cases, adhesions or inflammatory exudate in the neighborhood of the lower part of the ureter were considered as the cause of bleeding in 6; an extension of an inflammatory process to the kidney occurred in 3 cases; and a toxic nephritis was

believed to be responsible in 2 of the cases. After citing the history of two patients, the author discusses the possible explanation for the renal symptom. Although he is unable to come to a definite conclusion, he leans to the view that the bleeding is traceable to glomeruli, and is directly due to the embolic and thrombotic extension from the appendix.

#### 12. Cystoscopic Findings in Carcinoma of the Uterus.

According to *V. Blum*, the most common vesical picture attending carcinoma of the uterus is the so-called edema bullosum (cystitis proliferans edematosa) which occurs in the mucosa that adjoins the uterine neoplasm. The bladder wall seems to be drawn out in a funnel-shaped fashion, the apex of the cone being occupied by edematous vesicles. The walls of the funnel are composed of reddened retracted folds of mucous membrane. In the neighborhood of this lesion, there are apt to be dilated veins that may attain enormous dimensions, one of the cases under observation having presented a varix as thick as a finger. When the carcinoma has invaded the muscle wall of the bladder, the tumor masses may intrude into the vesical cavity. It is then that three different pictures may obtain: 1. retraction of the mucous membrane at the site of penetration; 2. dilated veins; 3. bullous edema.

An interesting and significant observation was made by the author in cases where the ureter or the bladder wall was already involved by the growth. Under these circumstances, a unilateral strong pulsatory movement could be regularly detected.

In general, it may be said that the cystoscopic findings do not give us positive data as to the proximity of the tumor masses except where complete perforation has already taken place. An attached bladder wall, too, does not signify that the tumor may be easily separated from the bladder. Indeed, even bullous edema, varices and retraction, are not definite evidences that the muscle layer has been infiltrated. The subjective symptoms, however, such as frequent urination, pain upon distension of the bladder, tenesmus after urination, a feeling of the presence of a foreign body in the bladder, and, objectively, the presence of small amounts of blood in the urine — these all speak in favor of the involvement of the bladder, even if the cystoscopic examination be negative.

#### 13. Perineal Prostatectomy.

The experiences gained from the 20 cases of *Rudolph Frank* may be summed up as follows:

There were 2 deaths, 1 due to secondary hemorrhage, a second due to pneumonia and suppurative pyelitis. Closure of the perineal fistula took place after 6 weeks in 7 cases, after 8 weeks in 5 cases, after 3 months in 3 cases, after 5 months in 1 case. Epididymitis occurred 5 times with suppuration in 2 cases. There were no permanent

fistulae but 4 patients complained of diurnal incontinence for quite some time. Impotence became regularly established, as far as could be learned in the cases whose subsequent history could be ascertained.

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Vol. VI, No. 2, 1912.

1. The Morphology and Topography of the Kidney. By Ernst Wolff.
2. Anuria in a Case of Single Kidney. By D. Giordano
3. Remote Complications in Transvesical and Perineal Prostatectomy. By Barthélemy Guisy.
4. Two Cases of Punctured-Incised Wounds of the Kidney, By P. D. Solowow.
5. Experiments with Prostatocytotoxin. By Josef Sellei.
6. Reports of the Russian Urological Congress. Julius Grünberg.

1. **The Morphology and Topography of the Kidney.**

*Ernst Wolff* has made an anatomical study of the kidney and discusses the following questions. First, is the embryonal grouping of the medullary substance recognizable in the adult kidney? Second, how often is sulcus formation discernible in the adult organ, and does lobulation, when it exists, correspond to the disposition of the medullary substance? Third, has the configuration of the pole of the kidney any relation to the form of the pelvis and calyces? The details of the author's studies must be read in the original.

2. **Anuria in a Case of Single Kidney.**

*D. Giordano* cites a case in which the left kidney had been removed seven years previously for tuberculosis, the patient having been admitted to the hospital for anuria. It was interesting to note that nephrotomy was followed by immediate improvement and permitted the removal of a number of renal calculi at a later date. It is clear then that nephrotomy is the preferred procedure, when we are dealing with anuria of a solitary kidney, and is better than an extensive exploratory attempt to locate or to remove an obstruction.

3. **Remote Complications in Transvesical and Perineal Prostatectomy.**

*B. Guisy* recalls the fact that although the organic complications of prostatectomy, such as stricture of the membranous urethra, incomplete incontinence of urine, formation of calculus in the prostatic bed or bilateral orchitis, have very often been made the subject of discussion and have recently been described by Prof. Kullimzi, the mental complications following the operation have received little consideration by most authors.

In a series of 17 prostatectomies, 3 cases of mental disturbance presented a sufficient number of points of interest to warrant forming the subject of this paper. In 1896 the author had already called attention to the fact that derangement in the psychic function could

occur not only with complications of prostatectomy and with lesions of the testicle, but could also accompany a variety of diseases of the prostate such as hypertrophy or acute and chronic inflammation. He had observed in cases of gonorrheal prostatitis or after venereal excesses, symptoms such as insomnia, melancholia, and hypochondria. Thus in the case of a shoemaker, 70 years of age, who had suffered for a long time from symptoms of senile prostatic hypertrophy, the psychic disturbances were so marked that suicide was attempted. Another prostatic succeeded in taking his life after a melancholic period in which there was marked insomnia. A third case of chronic prostatitis was affected for a long time with hypochondria and melancholia.

Since these observations were made, the author had occasion to see 9 cases with psychic symptoms in a series of 93 patients having prostatic disease. The disturbances as a rule were alterations in character, low mentality, melancholia with or without optical and acoustic hallucinations, maniacal attacks with or without tendency to suicide and general tremor. Out of 51 cases of acute gonorrheal prostatitis, 4 presented temporary psychic disturbances, with changes in character, and melancholia. One of the cases of melancholia lasted for 7 months. Out of 51 cases of prostatic hypertrophy, between the ages of 57 and 67, there were 3 instances of psychic derangement with optical hallucinations, melancholia and tendency to suicide.

Although Freyer and Ertzbischoff have never seen psychic disturbances after prostatectomy, and believe that those patients who have suffered from mental disturbances before the operation were often freed from their symptoms after the prostate had been removed, the author is of the opinion that psychoneuroses not only accompany the various diseases of the prostate, but may be the sequelae of total extirpation of this gland. In 17 of the cases of prostatectomy studied by the author, there were two instances of psychic disturbance with changes in character, melancholia, tendency to suicide, and in one case, a generalized tremor of long duration.

A series of nine cases of genital tuberculosis presented 1 case of severe melancholia.

From these observations it may be concluded that the prostate, just as the testicle, the ovary, the adrenal, the kidney and the thyroid is a gland that delivers an internal secretion, the integral function of which is its action on the psychic sphere of the brain, by virtue of which the integrity of the intellect is assured. In all probability, the substances which influence the brain tissue are produced in the prostate, enter the circulation and then exert either a direct or possibly an indirect action on the psychic or psychomotor sphere of the brain.

As for the influence of the prostatic gland on the testicle, the

author is of the opinion that the histological integrity of the testicle is not vitiated by the removal of the prostate.

#### 4. Two Cases of Punctured-Incised Wounds of the Kidney.

The paucity of reported cases of penetrating and incised wounds of the kidney, there being, according to Paul Wagner, only 60 in the literature, has stimulated *Solomon* to record his own observations, limited to two cases. From a consideration of his own studies and those reported in the literature, the author concludes as follows: First, just as in cases of sub-cutaneous injury of the kidney, so also in open lesions does the power of the external force or the size of the wound bear no relation to the injury of the kidney. Second, whereas the expectant and conservative therapy is to be recommended for all sub-cutaneous injuries of the kidney, the treatment of open lesions often necessitates more radical procedure. However our aim should be directed towards accomplishing the following: the conservation of the anatomical and functional integrity of the kidney, the cessation of hemorrhage, the avoidance of the formation of urinary fistulae of long duration, and the prevention of infection of the loose fatty connective tissue surrounding the kidney. Third, as a rule, suture of the renal parenchyma, pelvis, ureter or vessel is the best surgical procedure. A drain, however, is always a valuable preventive measure against infection. Fourth, whenever it is impossible to stop bleeding, (whether this be due to the fact that the sutures cut through the renal parenchyma or that the wound is too large and inaccessible or that the vessel injury is too great) and whenever the general condition of the patient is alarming and the first indication seems to be the prevention of a fatal outcome, it is then best to place a crushing clamp on the vessels at the hilus, and to remove the kidney at a later date.

#### 5. Experiments with Prostatocytotoxin.

In a previous publication, *J. Sellei* had shown that it is possible to produce auto- or isoprostatic cytotoxin by the injection of prostatic secretion into animals. These substances exert a specific action on the prostate. The purpose of the author's experiment was to investigate, first, the action of normal and diseased human prostatic secretion on the prostate of rabbits and dogs; second, the action of immune serum of rabbit and dog treated with human prostatic secretion (the corresponding prostate of these animals); third, the action of emulsions of prostatic glands of rabbits and dogs upon these animals; and finally, fourth, a combined method of investigation for the purpose of studying the effects of serum upon animals that had previously been treated with prostatic emulsion.

Although the results of the author's researches are still incomplete, he seems inclined to the view that further study will support his contention that changes in the prostatic gland may be produced both with prostatic emulsion and with immune serum.



In a future publication, the author proposes to give the result of further experimentation.

6. Reports of the Russian Urological Congress.

*Julius Grünberg.* These reports are so brief that they are best consulted in the original.

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REVUE CLINIQUE D'UROLOGIE.

MARCH 1912

1. The Treatment of the Urethra after Incision of a Urinary Abscess. By V. Rochet and L. Thevenot.
2. Albuminuria, Nephritis and Pyelonephritis of Gonorrheal Origin. By B. Motz.
3. Prostatic Lithiasis (continued). By J. Tanton.
4. A Case of Double Congenital Diverticulum of the Bladder. By H. Brongersma.
5. The Treatment of Rebellious Gonorrheal Infection in the Female. By G. Stoicesco.

1. The Treatment of the Urethra after Incision of a Urinary Abscess.

*V. Rochet* and *L. Thevenot*, discussing the question as to whether a stricture of the urethra should be attacked primarily whenever intervention is necessary for urinary infiltration or abscess, point out that there is still a diversity of opinion regarding the proper procedure. Thus surgeons combine internal urethrotomy with the incision of an abscess, a method which may be followed by chill, urinary fever or symptoms of general infection. Because of these facts, strongly emphasized by Albarran, Tuffier and Desnos, this combined treatment has been abandoned by most authorities. Other surgeons perform external urethrotomy at the time of incising the abscess. Although the danger of a general infection or ascending infection is considerably minimized by this procedure, the chances of the establishment of a fistula are much increased thereby. In addition to this disadvantage, it must be borne in mind that a large mass of indurated cicatricial tissue is left behind, favoring a return of the stenosis. In spite of these facts, however, this method used to be the generally accepted one in Germany.

Strongly opposed to the latter procedure, Guyon advised a two-stage operation according to which the internal urethrotomy was to be carried out 5 or 6 weeks after the primary operation, or at least, after the wound had developed extensive granulation.

It is true, however, that in rare cases, when the abscess is very small, it is permissible to perform internal urethrotomy at once, without danger. Horteloup strongly advises the method of primary intervention, contending that urethral infection is not to be feared if the purulent focus be radically treated.

As for the author's position in this matter, the freedom of uri-

nary flow is taken as a guide. Thus the cases may be divided into, first, those where urination is free, or at least in which spontaneous micturition is only slightly impaired; and secondly, those patients who have great difficulty in emptying the bladder. In the first group, the two stage operation is required, and in the second category, the authors deem it wisest to perform external urethrotomy primarily, granting that the opening of the canal may sometimes present considerable difficulty.

Following this line of treatment in 21 cases, the authors were very much gratified with their results, and, except for the establishment of 3 instances of fistulae in those patients in whom immediate urethrotomy was necessary, no complications were recorded.

## 2. Albuminuria, Nephritis, and Pyelonephritis of Gonorrheal Origin.

*B. Motz*, in a consideration of the literature of albuminuria complicating gonorrhea, finds that some 12% of the cases are recorded as having had albumin in the urine. The duration of the albuminuria was found to be about 6 to 7 days in about one-half of the cases. Most of the patients studied presented complications, such as painful orchitis, when they were admitted to the hospital.

Referring to the work of Balzer and Souplet, the author takes issue with their findings, contending that the parenchymatous nephritis described by these authors has not been definitely proven to exist, and that the albumin in the urine, in all probability, is derived from the glands about the posterior urethra.

The literature on the subject of the existence of parenchymatous nephritis of gonorrheal origin is too vague to be accepted without further evidence. Theoretically, the toxins of the gonococcus could produce a so-called medical nephritis.

Suppurative pyelonephritis according to Tuffier not infrequently complicates gonorrhea. Thus Fischer reports 12 cases out of a total of 496, and Sigmund observed 9 out of 368 or about 2½ per cent. The author thinks that suppurative pyelonephritis is not as frequent as most observers believe, even in cases that have been poorly treated. Although both the descending and ascending modes of infection may exist, the pathogenesis is always difficult to explain. Even when the primary infection was gonococcic, the kidney may become affected by secondary invaders such as the colon bacillus or the staphylococcus. These may be found in pure culture or associated with the gonococcus. But very few authentic cases of true gonorrheal pyelonephritis have been published. All in all, but one-half dozen instances of indubitable gonorrheal invasion of the kidney were found in the author's search.

As for the symptoms of this type of pyelonephritis, these may begin either insidiously or acutely. Often the cloudy urine is the only sign. The patient may have had a urethral discharge for a long time, the urine remaining uniformly cloudy, gonococci having

disappeared, and the ordinary pathogenic bacteria being present. Although augmentation in the size of the affected kidney is at times observed, it is not rare to find renal infection without change in the size of the organ. In other cases, chills, a rise in temperature, headaches, gastric symptoms, diminution in the quantity of urine, albuminuria and tenderness in the lumbar region are present as indications of an affection of the kidney. Such symptoms, as a rule, do not last for more than a week, although in rare cases they may persist from 14 to 20 days.

Although in general, it may be said that the diagnosis is not positively made unless ureteral catheterization is done, in cases which present cloudy urine, a large and painful kidney may, in the presence of other positive evidences, be regarded as examples of gonorrheal pyelonephrosis. It is always important, however, before proceeding to catheterization of the ureters, to exclude the presence of pus in the lower segment of the urinary tract. Indeed in most instances, microscopic examination will show that the glands about the posterior urethra are at fault, and that the pus does not emanate from the kidney.

Acute pyelitis should be treated by rest in bed, a milk diet, diuretics, urotropin, and a continuation of the gonorrheal therapy. In the sub-acute and chronic cases, however, where after 5 or 6 weeks of conservative treatment, cloudy urine still persists, lavage of the pelvis of the affected kidney with from 1 to 300 silver nitrate solution is indicated. Such lavages are to be given every two days, as a rule, and, in many cases a cure may be expected after 2 to 4 treatments. In some instances, however, several months may elapse before a result is obtained. Where the pyelitis is deep-seated or where the kidney parenchyma has been affected, we can hardly hope to attain much by the lavage treatment.

### 3. Prostatic Lithiasis.

*Tanton* believes that we should distinguish carefully between calculi of the prostatic urethra and those that are formed in the gland itself (viz. intra-prostatic). The urethral type is the more common. The stone may simply occupy the prostatic urethra, it may extend into the bladder (the urethro-vesical type), or the vesical portion may be large, the prostatic small, representing the so-called vesico-prostatic type. Where the calculus projects into the membranous urethra, its larger portion being in the prostatic urethra, we are dealing with a prostato-membranous calculus, and, in certain instances, even the bulb may be invaded.

The intra-prostatic calculi are diverse in form. They may be so small as granules of fine sand, discrete or agminated in single or multiple foci. Veritable calculi, however, may be formed attaining a diameter of 0.5 to 1 cm. The stones may be situated in one or both

lobes of the prostate, surrounded by ample prostatic tissue or lying in large cysts at the expense of the glandular elements. Where a communication with the urethra has been formed a urethro-prostatic calculus is present. Chemically, there is a difference between the urethral and prostatic calculi, inasmuch as the former are composed of a nucleus of uric acid or urate, at times, oxalate, surrounded by phosphates, the prostatic calculi are more apt to be formed of an albuminoid core in which phosphate of lime, ammonio-magnesium phosphate or carbonate of lime is deposited.

Calculi of the prostatic urethra may be formed in loco, i. e., autochthonous, or they may be migratory or exogenous stones. The autochthonous or primary calculi are usually phosphatic, being produced by virtue of the deposition of phosphates in a site where stagnation is favored either because of an old traumatic lesion or congenital or inflammatory coarctation. More frequently, however, such calculi descend from the superior urinary tract, the kidney, the ureter or bladder.

The intra-prostatic stones may be of two varieties, nitrogenous or made up of prostatic concretions. The former organic or albuminoid concretions are yellow, glassy and may normally exist in glandular pouches after the twentieth or twenty-fifth year. Concentric layers of organic material may develop and be deposited around the periphery of such granules, and cause augmentation of their volume. The larger, more voluminous prostatic calculi are the result of incrustation of lime upon the physiologic albuminoid body.

Patients with prostatic-urethral calculi will often give the history of having had attacks of renal colic, possibly with the expulsion of stone, and the urine may show an abundance of urates or uric acid. There may be increased frequency of micturition, the stream may be suddenly interrupted, tenesmus may be present at times, with a feeling of distress or weight in the perineum. Later on, as the stone increases in size, urination may become impossible and retention may become complete, or a condition of incontinence may become established.

Physical examination with an exploratory sound in the urethra, and palpation by rectum will often reveal the presence of a calculus. The characteristic rubbing sensation of the stone against the metal sound may be produced by a to and fro motion of the instrument.

As for the symptoms of intra-prostatic calculi these may be very slight, or at times totally absent, depending of course upon the size of the stone. Except for slight distress in the perineum or slight interference with micturition necessitating greater effort in expulsion, there may be no signs present. Where a stone is imbedded in the prostatic tissue, the sound may reveal nothing. Rectal palpation must then be relied upon for evidence of its presence.

In the treatment of this condition it must be remembered that

only very small stones will pass, and for the most part, operative interference is necessary, four modes of procedure being possible:—viz., by the urethral, rectal, perineal or vesical route. But very few calculi can be extracted *per urethram* and only in exceptional instances can the stone be removed with forceps through or without an endoscope. Crushing of the stone *in situ* is too difficult to warrant serious consideration.

Formerly the rectal route was employed, particularly for intra-prostatic calculi, but because of the possibility of severe hemorrhage and the establishment of urethro-rectal fistulae this procedure is now completely abandoned.

The perineal procedure will vary, depending upon whether the stone be in the gland or in the urethra. In the former case, one may incise directly upon the prostate through the transverse pre-rectal incision, the calculus being removed with forceps and the cavity packed. Where the stone lies in the urethra, the apex of the prostate is exposed, the urethra incised in its membranous or bulbar portion, and the calculus either removed with forceps or crushed *in situ* and then extracted. At times, in the case of large stones, particularly where they extend into the bladder, a supra-pubic incision will be necessary.

The hypogastric operation is indicated in those cases where there is a vesico-prostatic calculus or where a pure prostatic stone is too large to be extracted by the perineal route.

#### 4. A Case of Double Congenital Diverticulum of the Bladder.

*Brongersma* relates an interesting instance of bilocular or double congenital diverticulum of the bladder successfully operated upon, the pouch having been situated behind the interureteric bar just between the two ureteric orifices.

#### 5. Treatment of Rebellious Gonorrheal Infection in the Female.

*G. Stoicesco*, from a consideration of his own experience, proposes the following rules for treatment of rebellious gonorrheal infection in the female. First, the case should be examined either early in the morning or sufficiently long after the last micturition. Second, specimens should be taken from the vulva, the urethra, the vagina and the cervix uteri. Third, the urine should be collected in two glasses in the first of which, the urethral secretion will be found. When the first glass is cloudy, the second clear, the urethra is alone affected: when both glasses are cloudy, there are either vesical lesions or the superior urinary tract is affected. Fourth, by inspection and by means of the palpating finger in the vagina, may be determined the existence of urethral polyps and the state of the paraurethral and vulvar glands. On each side of the urinary meatus, Skene's gland must be inspected, and above the urinary opening the state of the canal of Wolff must be investigated. On either side of the vagina,

the Bartholinian glands will often be found affected. Fifth, in the case of old lesions with very little urethral secretion, this canal must be explored with an olivary bougie and with the urethroscope. Sixth, the condition of the uterus and its adnexa must not be overlooked. Seventh, the state of the kidneys and renal pelves as regards pyelitis is the last point to be noted.

## FOLIA UROLOGICA

VOL. VI, FEBRUARY, 1912.

1. The Resistance of Nephrectomized Animals Towards Poisons. By H. Wildbolz.
2. Uric Acid in the Blood with a New Method for its Detection. By M. Giordano.
3. Concerning Polycystic Kidney Tumors. By P. Steiner.
4. A Case of Gonorrheal Pyonephrosis. By E. E. Franco.

### 1. The Resistance of Nephrectomized Animals Towards Poisons.

*H. Wildbolz* calls attention to the fact that there are but few observations in the literature on the resistance of nephrectomized human beings or animals to poisons. No systematic animal experimentation having been carried out, Wildbolz investigated the effect of various poisons of known toxicity.

In the first series the following narcotics were used: urethane, morphine, medinal and chloral hydrate. The method of procedure was the following: Rabbits were injected intravenously with a dose of the drug proportionate to the body weight, and the length of time of hypnotic effect was noted. A week later the animals were nephrectomized, and 2 or 3 months later, when compensatory hypertrophy was fully developed, the tests were repeated. There was no appreciable difference between the nephrectomized and the normal animals following the use of urethane and morphine. Quite marked differences were noted after the administration of medinal and chloral hydrate, the nephrectomized animals showing an increased susceptibility to these drugs as evidenced by longer hypnosis. Injections of atropine were given in a second series, and the nephrectomized animals showed rather marked increased susceptibility; while in a third series, using diphtheria antitoxin, no appreciable differences were observed. The above mentioned poisons can therefore be divided into two distinct groups: morphine, urethane, and diphtheria toxin causing no difference when injected into nephrectomized animals; medinal, atropine, and chloral hydrate, in the second group, showing marked susceptibility for the animals deprived of one kidney. The reason for these variations can be found in the method of excretion from the body, the poisons of the first group being either excreted in small amounts by the kidney, or else undergoing marked change before excretion; while in the second group, the poisons are mainly excreted

by the kidneys, undergoing very little changes in the process. The above observations should be of value clinically in prescribing for nephrectomized patients.

2. Uric Acid in the Blood with a New Method for its Detection.

*M. Giordano* gives a critical review of all the publications concerning the presence of uric acid in the blood, and considers it important to complete the clinical observations by the aid of physiological and pathological chemistry. Contrary to the generally accepted opinion, the author thinks that under normal conditions the uric acid in the blood cannot be found by our ordinary methods of examination. Since, however, it has been shown that uric acid will appear in the blood temporarily and independently of pathological conditions after the ingestion of substances rich in nuclein, it is very important in examining chemically to take the patient's diet into consideration. The blood does not contain urolytic ferment. Therefore certain pathological conditions cannot be explained by the decrease of it. As to the pathological conditions which, in common with gout, show the presence of uric acid in the blood, the opinions of various authors differ considerably. Uric acid appears in the blood in all those affections in which substances rich in nuclein are destroyed. In discussing the different methods of determining uric acid in the blood, the author states that the tests made in chemical laboratories give misleading or doubtful results to the clinician, and propounds a new method of studying pathological conditions by a combination of physiological and pathological chemistry.

3. Concerning Polycystic Kidney Tumors.

In general, polycystic kidneys according to *P. Steiner* are divided into two groups, those of the newly born, and those found in adults. Four theories as to pathogenesis have been propounded. Virchow regarded the condition as congenital and the cysts as retention cysts, due to congenital occlusion of the excretory canaliculi of the kidney. Various explanations as to the etiology of the occlusion have been advanced, gravel, bloodclots, fibrin and epithelial plugs having been held accountable. The adenocystomatous theory regards the cysts as neoplastic; pathologically and clinically, however, many things speak against this theory. The teratoid theory explains cyst formation on the ground of embryonal deficiencies in development. The most recent theory is that the cysts are due to inflammatory processes. As regards the symptomatology, the author considers as characteristic, attacks of hematuria usually accompanied by colicky pains in both renal regions. Often the uneven nodular surface of the kidneys can be made out by palpation. The diagnosis is seldom made before operation or post-mortem examination. The prognosis is very unfavorable since the condition is generally bilateral. Surgical treatment is only indicated where hematuria and pain are pronounced, or

where infection of the kidney has taken place. Nephrectomy is practically always contraindicated; the influence of nephrotomy and decapsulation upon the course of the disease is not favorable.

4. A Case of Gonorrheal Pyonephrosis.

*E. E. Franco* reports the case of a woman, 26 years of age, suffering from ureteritis and pyonephrosis dextra of 4 years' duration. Catheterization of the right kidney showed gonococci in pure culture. Nephroureterectomy was performed, resulting in cure.

Examination of the large pyonephrotic sac showed microscopically lesions resembling those found in chronic parenchymatous nephritis, combined with numerous foci of chronic interstitial nephritis and severe pyelitis and ureteritis. After a careful study of the condition, the author could not decide whether the infection was due to an ascending or descending process. But 14 cases (including the author's) of gonorrheal pyonephrosis have been reported in the literature; half have been mixed infections, in the other half pure cultures were obtained.

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## MISCELLANEOUS ABSTRACTS

### Indications for Decapsulation of the Kidney.

*Lehman (Berl. Klin. Woch., Jan. 22, 1912)* says that it has been shown experimentally that after decapsulation, a new capsule is regenerated within three weeks. This new capsule is very vascular, but an anastomosis between its vessels and those of the kidney proper, has never been demonstrated satisfactorily. One can not judge well of the results of decapsulation by animal experimentation, for those processes which are favorably influenced by the operation cannot be reproduced in animals. *Israel* recommends the operation in the condition known as nephralgie hematurique; he however prefers nephrotomy to decapsulation. The nephritic process is but slightly influenced by the operation, but the subjective symptoms and general condition are often markedly improved, especially the pain and edema. The author reports three cases of chronic nephritis, which were very much improved subjectively after decapsulation; the nephritis however persisted, as evidenced by the urinary examination. *Lehman* considers operation indicated in cases of chronic nephritis where internal medication has failed to give relief, and where subjective symptoms are increasing in severity; also in cases of acute nephritis where the patient is becoming or is uremic. Decapsulation of one kidney may effect a cure. The operation is only indicated in uremia occurring during the course of a chronic nephritis, where one can be certain that there is sufficient functioning kidney tissue left. Combined with nephrotomy the operation is often of great service in inflammatory purulent renal conditions, such as pyonephrosis, caused by stone, or



by ascending or hematogenous infection. The author has not had sufficient experience with decapsulation in eclampsia to set any indications.

**The Side-Tracking of the Bladder in Severe Cases of Vesical Tuberculosis.**

L. Casper (*Berl. Klin. Woch.*, Feb. 19, 1912), states that the side-tracking of the bladder first proposed by Rovsing has been performed but twice. Casper reports two of his own cases and advises that this procedure should be reserved only for those very severe forms of vesical tuberculosis which have resisted all methods of treatment including a cystotomy for drainage. The first case was that of a woman nephrectomized seven years previously for tuberculosis, and who complained of marked frequency of urination with pain and tenesmus. The bladder was markedly diseased, with a capacity of 60 cc.; the urine containing tubercle bacilli. Cystotomy failing to give relief, the author performed a nephrostomy and the patient died soon after from anuria. The second case was that of a man nephrectomized six and a half years previously for tuberculosis and who presented marked vesical symptoms with tubercle bacilli in the urine. A lumbar ureterostomy was performed and the patient's bladder symptoms entirely disappeared soon after. As a result of these two cases Casper recommends a ureterostomy in preference to a nephrostomy.

**Fatal Case of Gonococcemia with Acute Atrophy of the Liver.**

Weitz (*Mediz. Klinik*, Feb. 4, 1912) calls attention to the fact that acute atrophy of the liver, occurring during the course of a gonorrheal septicemia, has never been described in the literature. The following was remarkable in many respects. The patient was a boy of 19 who had a gonorrhea of several weeks' duration, when he became jaundiced and then comatose. Three days after the jaundice appeared, death occurred. Cultures of the blood showed an enormous number of colonies of gonococci. The post-mortem examination showed numerous sub-cutaneous and renal hemorrhages, with bleeding in the intestine and peritoneum. The liver was not enlarged, but studded with numerous hemorrhages, and microscopically showed marked degenerative and atrophic changes. There were none of the usual complications of a gonorrheal sepsis present, such as rheumatism, iritis and endocarditis. The prostate was not involved, but the seminal vesicles contained yellow greenish pus.

**The Systemic Gonorrheal Infections.**

K. Zieler (*Mediz. Klinik*, Feb. 11, 1912) declares that in all general gonorrheal infections, the gonococci enter the blood stream, although it is often difficult and at times impossible to demonstrate their presence culturally. General manifestations of sepsis occurring during the course of a gonorrhea may be due to secondary infections

with staphylococci or streptococci. The etiological factors that predispose toward the development of a general gonococcic infection are traumata, generally caused by instrumentation, the improper treatment of complications, and excesses in alcohol and venery. General constitutional diseases, such as diabetes and tuberculosis, by lowering the general vitality, are also predisposing factors.

Ulcerative endocarditis developing during the course of a gonorrhoea is most often caused by gonococci. It may, however, be due to a mixed infection. The milder types of endocarditis are often overlooked. The severe forms generally occur in conjunction with other septic manifestations, most often a rheumatism, and are characterized by high fever of a septic type, chills, dyspnoea and palpitation. The heart enlarges and murmurs appear; the aortic valves are most often affected. The course may be very rapid, death ensuing within a few months, or recovery may take place with the consequent effects of a severe valvular lesion. A positive diagnosis of gonorrheal endocarditis can only be made by blood culture. As regards therapy, intravenous injections of collargol and vaccines are recommended. Gonorrheal pericarditis may occur with or without an endocarditis.

The most frequent metastatic complication of gonorrhoea is rheumatism. The presence of gonococci in the blood and joints has been proven culturally. The acute type is characterized by severe articular pain, swelling and septic fever, the knee joint being most often involved. Positive diagnosis can be made by blood cultures, X-ray examinations, complement fixation tests and local reaction to vaccine injections. The prognosis is bad where severe peri-articular inflammation or suppuration has taken place, for ankylosis and malformation are often the results. The acute stages are best treated by immobilization of the joint (for only a short period), Bier's hyperemia, and vaccine therapy. The chronic cases are benefited by hot air, sulphur and mud-baths, massage with active and passive motion. Gonorrheal tenosynovitis most often affects the tendons of the fingers and toes and generally responds to the same treatment as for arthritis. Of the bursae, the Achilles is most often involved, and usually bilateral. Metastatic myositis generally occurs in conjunction with other complications. Gonorrheal periostitis is not an infrequent metastatic manifestation; an osteomyelitis, however, is very rare. Neuritis, neuralgias and meningomyelitis of gonococcic origin have been described, but the organisms have never been demonstrated in any of these lesions. Metastatic skin manifestations are very rare, though gonococci have been found in the lesions. Iritis and conjunctivitis (metastatic) are occasionally encountered. Vaccine therapy is of great value in the treatment of these systemic gonorrheal infections, but the local source of infection must also receive appropriate treatment.

## Treatment of Gonorrhoea and its Complications with Gonococcus Vaccines.

F. Hagen (*Mediz. Klinik.*, Feb. 18, 1912) in a study of 59 cases of gonorrhea treated with vaccines, concludes as follows: Uncomplicated urethral gonorrhea showed no improvement whatsoever; in fact, some cases were made distinctly worse, four developing epididymitis. Prostatitis and spermatoecystitis likewise remained uninfluenced. The cases of gonorrheal arthritis treated (number not mentioned) were not favorably influenced. Excellent results were obtained in epididymitis; 55 of these cases were treated and all but 7 showed marked improvement; the swelling and pain disappearing more rapidly than with other method of treatment. Vaccines are contraindicated in beginning epididymitis, and should be used very cautiously if a funiculitis is present. The most favorable time to begin vaccine therapy in these cases is on the second or third day, when the inflammatory symptoms are most pronounced. Autogenous vaccines gave no better results than the polyvalent stock vaccines.

## BOOK REVIEWS

UROLOGY, THE DISEASES OF THE URINARY TRACT IN MEN AND WOMEN. A book for Practitioners and Students. By *Ramon Guiteras, M. D.* (Professor of Genito-Urinary Surgery, New York Post-Graduate Medical School, etc.). With 943 Illustrations in text, and 7 plates; 2 volumes, large octavo. New York: D. Appleton & Co, 1912. A text-book by this well-known urologist will doubtless be particularly welcome to American students, for a distinct dearth of practical guides in urinary diseases has existed for many years. In two well-illustrated and attractive volumes, the author describes the diseases of the urinary tract of male and female—the symptomatology, diagnosis and treatment receiving especial attention.

The first volume includes a consideration of the following topics: the anatomy of the urinary organs; the laboratory methods of examining urine; office equipment, instruments and their care; the technic employed in the application of the special armamentarium, including the use of the urethroscope, and cystoscope; the symptomatology; the taking of the history; general therapeutics, and diseases of metabolism.

The second part of the work is mainly clinical and includes the diseases of the kidney, ureter, bladder, prostate, urethra and genital organs of the male.

Although illustrations have been borrowed here and there, from various writers, there is a distinctly personal note in the author's teachings that appeals to the reader.

As in most first editions, errors have crept into the text, here and there; but on the whole, these are few in number. In general this work will serve as a reliable guide and excellent book of reference.

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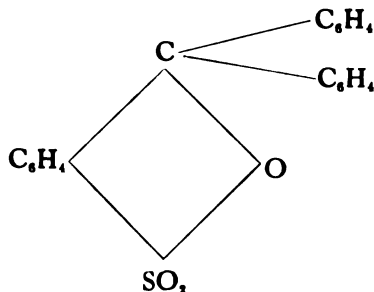
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## THE PHENOLSULPHONEPHTHALEIN TEST GERY OF THE GENITO-URINARY TRACT

By LOUIS E. SCHMIDT, M. D., and HERMAN L. K.  
M. D., Chicago.

**T**O Ira Remsen belongs the credit for having  
this chemical. Its physical and chemical  
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der, somewhat soluble in water, more so in alcoh  
ether: its dilute alkaline solution is of a purer re  
lphthalein, while a more strongly alkaline sol  
readily soluble in solutions of sodium carbor  
er avidity as an acid than phenolphthalein.  
In an article on the pharmacology of p  
Abel and Rowntree have given it the fo  
formula:



They also demonstrated "that solutions of the sod  
erly made up, may be injected under the skin with  
• Read at the Annual Meeting of the American Urolo  
in Chicago, September 26 and 27, 1911.

est evidence of an irritant action. Given by mouth to healthy human beings in doses of 0.1 to 0.15 gram, the drug is readily absorbed and appears in the urine in the course of an hour or an hour and a half. After injection underneath the skin in doses of 1.6 c.c. of a five per cent. solution, it may be detected in the urine of healthy individuals within ten minutes.

When one dram of phenolsulphonephthalein is administered subcutaneously to a dog of fifteen kilograms weight a very small quantity only is discoverable in the feces, and the urine is apparently the only channel of excretion.

In order to learn whether this phthalein is excreted in the bile, a dose of one gram was administered subcutaneously to a dog with a permanent biliary fistula. In less than two hours the bile flowing from the fistula assumed a deep red color. A single drop of this bile sufficed to give a fine purple color to 25 c.c. of water containing a drop of sodium hydroxide solution, thus proving that the phthalein is excreted freely in the bile.

Inasmuch as but little of the drug can be detected in the feces when it has been given subcutaneously, it is evident that the portion of the drug which is excreted in the bile must be absorbed in its passage through the intestines. A number of experiments were made in which animals were killed at varying periods after subcutaneous administration of the drug, but in no case was it possible to obtain evidence of selective absorption, by one part only of the intestinal tract, as in the case of phenolphthalein, and its tetrachlor-derivative. All of the divisions of the intestines lying between the orifice of the common bile duct apparently absorb this drug as opportunity offers.

The same authors have examined carefully the urine of six dogs that had received this phthalein subcutaneously in doses of one gram and have not been able to detect albumin, sugar, casts, or other abnormalities.

Injected intravenously into rabbits in doses of from 0.6 to 1 gram in 10 per cent. solution, phenolsulphonephthalein exerts a mild diuretic action.

Phenolsulphonephthalein exerts only a slight or doubtful action as a purgative when given by mouth to dogs in doses of one gram, and is entirely devoid of action in this way when administered subcutaneously in this dose."

Further proof of the nontoxic nature of this chemical was brought forth by Rowntree. 0.3 was administered to a 200 gram rat infected with trypanosomes, without and untoward effect.

He injected 0.115 of this phthalein subcutaneously into a kitten weighing 650 grams. No toxic symptoms were noted.

In order to see the effect of the drug when it is retained in the system for any length of time, Geraghty and Rowntree performed the following experiment: A dog weighing 8 kilograms was nephrectomized and at the same time given one gram of phenolsulphonephthalein subcutaneously. At the end of ninety-six hours the dog was killed. This dog showed no signs at all of toxicity from the presence of the drug in the body and behaved in a similar way to another nephrectomized dog which was used as a control.

We have mentioned the above experiments in detail to show that phenolsulphonephthalein is devoid of toxicity, which is an element of importance when undertaking work of this nature.

The clinical application of this substance in functional kidney diagnosis was first demonstrated by Rowntree and Geraghty, who have worked out a very simple and accurate technique. The limitations of the present day methods of functional diagnosis have brought this test into a commanding position.

We believe that this test, which is not only simple and convenient to carry out, but combines with these advantages the fundamental requirements of accuracy and reliability, is one which is certain to win for itself in a very brief time a most prominent place in diagnostic methods of urinary surgery.

In our work we have aimed to follow as closely as possible the technique described by Rowntree and Geraghty. The phenolsulphonephthalein used was the standard solution purchased from Hynson Wescott & Co., Baltimore.

#### TECHNIQUE OF THE TEST

Each patient was instructed to drink two glasses of water, 400 to 500 c.c., about thirty minutes before giving the injection, in order to secure good urinary secretion. Unless a good secretion of urine is present, failure of the coloring matter to appear in the urine might be attributed to lack of excretion of the drug by the kidney, and hence be a source of error.

In only one case in this entire series have we been unable to carry out the test because of a lack of urinary secretion. The patient was a young man of thirty, who had a perineal fistula and a sinus leading to the left testicle. Thirty minutes prior to injecting the phenolsulphonephthalein he was given two glasses of water and a third glass at the time of injection. A soft rub-

ber catheter was introduced into the bladder and all urinary secretion stopped. We attempted on several occasions to carry out the test, but each time this reflex anuria appeared, making it impossible to determine the time of elimination, and hence rendering it impossible to carry the test out accurately. This was the only instance in the entire series in which we encountered this difficulty. In all the other cases there was no difficulty in securing a good urinary secretion and hence an accurate interpretation of the time of appearance of the drug.

We have used a solution of phenolsulphonephthalein containing 6 milligrams to the c.c. For injecting the solution we used a 2 c.c. Record syringe, drawing the solution up to the first mark beyond 1 c.c., so that the syringe contained 1.2 c.c. of solution. In order to inject 1 c.c. it was necessary to stop injecting when the plunger was flush with the 0.2 c.c. mark on the barrel of the syringe. The plunger is made of metal, and being ground square, is a little more accurate than the ordinary glass plunger syringe, besides being easier to read. Prior to injecting care should be exercised to remove the air which may be in the syringe. While at first it may seem superfluous to dwell at length on the small details of technique, the importance of this can readily be understood when we stop to consider that we are dealing with but 6 milligrams of a very sensitive drug having great coloring properties, so that a fraction of a c.c. will be a great source of error in the readings.

We have used three channels for introducing the phthalein into the general circulation, namely, subcutaneous, intramuscular and intravenous. No attempt was made to keep separate records of the subcutaneous and intramuscular cases. The variation in time was so slight as to make little difference, *for practical purposes*, inasmuch as we have attempted to limit ourselves to the practical, clinical application of this test.

The subcutaneous injections were made in the anterior aspects of the forearm or thigh.

The sites chosen for the intramuscular injections were either the anterior thigh muscles or the gluteal muscles.

Up to the present we have given the drug intravenously in 20 cases employing the following technique. The forearm and elbow were carefully washed with green soap and water, followed by alcohol and bichloride. A constrictor was then applied around the middle of the arm. The syringe was filled as described above and the needle thrust into one of the veins, which were made prom-

inent by having the patient open and close the hand a few times. One way of determining whether or not the needle is in the vein would be by slightly withdrawing the piston: whereupon, if the needle is in the vein the blood can be seen in the glass barrel mixing with the phthalein. The constrictor is removed and 1 c.c. of solution injected. When one is certain that the needle has entered the lumen of the vein, and experience teaches us the sensation imparted by the needle end being freely movable in the lumen of the vein, we inject one c.c. without the foregoing procedure. This is undoubtedly the more correct way because it also takes into account the solution of the dye within the lumen of the needle.

Because of the small amount of dye used it is imperative to be as accurate as possible, therefore the aforementioned methods have been mentioned.

#### TECHNIQUE OF COLLECTING.

The method of obtaining and collecting the urine for examination will depend upon the nature of the case under consideration. In the kidney cases the urine from each side was examined separately, while in the cases of lesions of the lower urinary tract the mixed urine was taken.

In the kidney cases we have employed, whenever possible, double urethral catheterization. This is the only scientific and accurate method for obtaining the urine from each kidney separately. In all our work we have employed, with but one or two exceptions, the so-called flute end ureteral catheters. These catheters have an opening at the end and two openings on the side giving three openings instead of one as found in the ordinary ureteral catheter.

It is best to use catheters of large calibre so as to collect all the urine and not permit any to pass alongside. When a fairly large catheter, 7 Charriere, is used the amount of urine flowing along the side of the catheter is very small, and when this has occurred we have made readings from right kidney, left kidney and the mixed bladder urine, which was nearly always a small amount.

For various reasons in a few instances, we have been able to catheterize only one side, and have, therefore, been obliged to insert a catheter into the bladder in order to collect urine which would supposedly represent the other side; and it would, if the



catheter in the ureter, was of the type above described and was large enough to prevent urine from passing along side.

It is necessary at the present time to take up the technique of ureteral catheterization, its difficulties and limitations. Its advantages and superiority to the various types of segregation are admitted by all.

In cases with pathological processes in the lower urinary tract, such as contracture of the neck of the bladder, stone, or tumor, senile enlargement of the prostate, ureteral stricture, etc., we have employed the mixed urine for determining the renal function prior to instituting any surgical procedures. Before the test is carried out it is best to first determine if possible, whether a retention of urine is present, by means of a catheter. This catheter can then be left in situ until the first pink color appears in the alkali solution. The subsequent mode of procedure varies with the individual case. If there is no retention of urine the catheter is withdrawn and the patient voids his urine at the end of one and two hours respectively.

In those cases in which a retention is present one or two modes of procedure may be carried out: either leaving the catheter in the bladder for two hours and changing the receptacles at the end of the first and second hours, or withdrawing the catheter as soon as the dye appears and then passing a catheter at the end of the first and second hours.

After the ureteral catheters have been passed or the bladder catheter has been fixed in position, it is best to wait a few moments before injecting the dye to see that the catheters are draining properly and the kidneys are secreting well, otherwise some error in the time of elimination will occur.

The ends of the catheters are then placed into previously marked test tubes containing one drop of a 25 per cent. solution of sodium hydroxide, and the time noted when the first pink color appears in the urine. The phenolsulphonephthalein imparts a golden color to the urine. As soon as the urine comes in contact with the sodium hydrate solution in the test tube it assumes a beautiful pink or purplish-pink color.

In a large percentage of our cases we have collected the urine for two hours changing the receptacles, at the end of one hour. With but few exceptions, a separate record of each hour of urinary secretion was made.

The quantity of urine is measured, reaction and specific gravity are taken, and the amount of urea estimated chemically.

Examination for albumin and sugar was made as well as the microscopic examination of the sediment for blood, pus, casts, epithelium, etc.

Care should be taken to rinse the collecting vessels with water as well as to wash both the outer side and the lumen of catheters in order not to lose any of the dye-containing urine.

To each specimen of urine a few drops of a 25 per cent. solution of sodium hydrate are added whereupon the urine assumes a beautiful purple-red color. Each specimen is then diluted to 1000 c.c. with sterile water. In the early part of this work we used distilled water as a diluting agent, but in the greater part of our work we have used sterile water. As far as we could determine it made no difference in the ultimate results which of the two diluting agents were used. It is necessary to have diluted urine distinctly alkaline, to bring out as much as possible of the coloring matter, so that just before completing the dilution we add a few drops of the 25 per cent. NaOH. The dilution is carried out in an accurately graduated litre flask such as is used in volumetric analysis.

All our readings have been made with the Du Boscq colorimeter, following closely the technique as described by Geraghty and Rowntree. After having collected and examined the urine in the above mentioned routine manner, sufficient urine is filtered through a fine white filter paper to fill the cup in the left side of the colorimeter with filtered urine. The cup in the right side is filled with a standard solution containing 3 milligrams of drug to a liter of water. This standard solution is rendered distinctly alkaline when it is prepared, and as it keeps indefinitely it may be used for a great many readings.

The plunger in the right cup is arbitrarily placed at 10. The plunger in the other cup is then manipulated until both halves of the field have the same intensity of color.

The indicator of the left plunger is now read, the fraction as indicated by the Vernier scale being taken into account. This we have done in each and every reading and unless this fraction is considered the results cannot be as accurate as in those cases where this fraction is taken into account.

Each cup of urine to be examined is read three times at least. Where there may be any cause for doubt, six, seven or even ten readings have been made and from these figures we took an average.

Let us suppose for example that the left side reads 25 on

the scale, the standard having been placed at 10. This means that it takes a column of fluid 2 1-2 times as high as that of the standard side, in order to have the colors in both halves of the field of the same intensity.

The following formula is used to determine the percentage of drug excreted in a given specimen of urine.

$$\frac{\text{Reading of Standard} \times 100}{\text{Reading of Unknown}}$$

Reading of Unknown

If the figures primarily mentioned be used we would have the following:  $\frac{10 \times 100}{25} = 40\%$ . This means that the urine in

the left hand cup contains 40 per cent. as much dye as is contained in the standard solution in the right hand cup. Still another correction is necessary. It will be recalled that as above-mentioned our standard solution contains 3 milligrams to the litre whereas 6 milligrams were injected, so that it becomes necessary to divide our reading of 40 per cent. by 2 which is 20 per cent. That is, in our example cited, 20 per cent. of the amount of drug administered was excreted.

Cabot, Keyes, and others have recognized the need of an instrument other than the DuBoscq if this test is to come into general use; for this reason, Young, Geraghty and others have sought instruments of less expense, which would be accurate, and portable.

In all cases in this series, regardless of the mode of administration of the drug, 6 milligrams were given at each injection. In this we followed the advice of Rowntree and Geraghty who stated "that in their early work they used doses varying from 3 to 60 milligrams," but it was found that the large doses have a color so intense that great dilution became necessary for quantitative colorimetric estimation. 6 milligram doses have been selected as most satisfactory for the majority of cases.

Because of the beautiful pink color, given by a solution containing 3 milligrams to the liter, which is obtained when the indicator was placed at 10, Geraghty and Rowntree were led to use a standard solution containing 3 milligrams to the liter.

In our later work we have been using a standard solution containing 6 milligrams to the liter, thereby simplifying the calculation.

#### NORMAL CASES

Our first work was carried out in a series of sixteen cases in

## THE PHENOLSULPHONEPHTHALEIN TEST 407

which there were no existing lesions of the kidneys as far as could be determined. See Chart No. I.

The time of appearance varied from seven to twelve minutes. Geraghty and Rowntree in their normal cases found the drug in the urine in five minutes after its administration. We have had one case in which the drug appeared in five minutes. This, however, we found to be the exception rather than the rule. But inasmuch as the lower time limit is not of as much importance as the upper we shall return to this time appearance of the drug further on in this paper.

The percentage of drug excreted during the first hour varied from 20.46% to 60.975%, and the figures for the second hour were from 8.77% to 37.87%. The total output for the 2 hours varied from 43.13% to 71.52%.

### BLADDER AND PROSTATE CASES

We have used the phthalein test in obstructive and non-obstructive lesions of the lower urinary tract, including cases of vesical calculi, tumors of the bladder and prostate, contracted neck of the bladder, enlargement of the prostate, urethral strictures and retention of urine due to lesions of the central nervous system.

The value of determining the renal function prior to instituting operative procedures on the lower urinary tract is coming to be recognized more and more. The importance of this procedure cannot be overestimated and the determining of the renal function is of great value when considering the contra-indications for operative treatment. It, therefore, becomes a factor in establishing a prognosis in given cases prior to operation. This is an aspect of the operative treatment which has been woefully neglected in the past, and is still neglected by a large majority of operators to-day.

Paschkis from Zuckerkandl's clinic, working with this object in view, used for his basis the determination of the excretion of urea, the chlorides, specific gravity, albumin and the indigo carmin test. We shall consider only his findings and results with the indigo carmin test. He found that in cases of enlargement of the prostate in which the patients were suffering from urosepsis that there was a delayed appearance of the blue color in the urine after the administration of indigo carmin. When these patients were treated with a permanent catheter the indigo carmin

appeared earlier in the urine than it did prior to the permanent catheter treatment.

Paschkis further noted that in the cases in which regular catheterization had been employed, avoiding an over distention of the bladder, and where the patients did not have symptoms of urosepsis, and in those cases in which a very small amount of retention of urine existed, that these cases when subjected to the indigo carmin test gave nearly normal findings.

Cases in which a permanent catheter has been used for a long time, and the polyuria did not markedly diminish although there seemed to be an apparent subjective improvement, do not show any improvement in the delayed excretion of the indigo carmin by this method. He further believes that by the indigo carmin test cases can be recognized in which kidneys are seriously damaged.

It is obvious that any method which can accurately and conveniently be used to determine the functional capacity of the kidneys will probably be of great value in reducing the mortality of these operative procedures. This has been our experience in a number of cases, a few of which we will quote below, but before so doing we wish to take up this group of cases as a whole.

There were 3 cases in this group, embracing the lesions as previously mentioned. (Chart No. II).

We will consider only 23 at this time as in 8 of them the phthalein was administered intravenously and they will be discussed with all the intravenous cases.

The time of appearance varied from 6 minutes to 70 minutes. Considering the percentage of drug excreted we find that during the first hour the excretion varied from 14.05% to 64.91%. During the second hour the lowest amount excreted was 7.03% and the highest 26.59%. The total for the two hours varied from 29.15% to 74.725%.

We wish to discuss the subject relative to surgery of the prostate under three headings.

1. Cases of low readings brought up to standard by the preliminary treatment.
2. Cases of low excretion, operation and recovery.
3. Cases of low excretion, no preliminary treatment, operation and death.

It may not be out of place at this point to very briefly discuss our general plan of carrying out the preliminary treatment. As so frequently happens these old patients suffer from more or

less chronic constipation with its train of symptoms. For two or three days they were given 1-2 grains of calomel daily followed by salines. Enemata given as required. Thereafter daily doses of the vegetable cathartics, such as cascara or rhubarb.

The activity of the skin is increased by daily warm baths either tub bath or electric light baths. Great care is exercised to avoid any fatiguing action of the baths.

Attention to the urinary tract is the factor of greatest importance. We have used treatment by means of the permanent catheter. But frequently these patients cannot tolerate a permanent catheter in which event one must resort to regular systematic careful catheterization. Equally as important as the baths and the catheter is the attention given the kidneys. We aim to have the patients drink between 4000 c.c. and 5000 c.c. of fluids per day advising them to drink freely of diuretic drinks such as hot weak tea, lemonade, lithia water. If necessary, diuretic drugs are administered.

#### CASE NO. 2—CHART II.—J. MC K., AGE 64

**PRESENT ILLNESS.** Patient states that his present illness began five years ago at which time he passed a calculus from the urethra. Nine months before entering the hospital he had a sharp attack of hematuria lasting for three weeks. For the past five or six months "he" has been passing a catheter and irrigating his bladder twice daily. His chief complaint at time of entering the hospital was frequency of urination, about once every two hours both day and night. The urinary act was accompanied with great pain in the tip of the penis and burning pain in the urethra. At times he had a sudden interruption in the urinary flow.

**CYSTOSCOPY.** Marked cystitis and trabeculization of bladder. A phosphatic stone size of a Brazilian nut was seen. Rosette shaped prostate.

**PER RECTUM.** Slightly enlarged prostate.

**GENERAL CONDITION.** Arteriosclerosis marked. Greatly emaciated, general appearance of suffering. Pulse very irregular.

**PHTHALEIN TEST.** Six milligrams injected subcutaneously. Time of appearance 50 minutes. Total drug excreted 43.47%.

These figures show both a delayed time of appearance of the drug as well as a diminished output. The indications for improving the renal function were quite evident. The patient was accordingly treated with irrigations, permanent catheterization,

baths, diuretics and cathartics and a second reading made four days later with the following results: injected 6 mgs. phthalein; time of appearance, 20 minutes; total drug excreted, 53.5%.

The improvement in the renal function was apparent and showed a quick response to the preparatory treatment. The treatment was continued a few days longer and a third injection given. Time of appearance, 18 minutes.

OPERATION: suprapubic prostatectomy with removal of stone. Uneventful recovery.

CASE NO. 22.—CHART II.—M. S., AGE 60

PRESENT ILLNESS. The patient stated that he has had more or less trouble with urination for many years, which began so slowly that he cannot fix a definite time of its onset. He first noticed a twisting of the stream, and that it was gradually getting weaker. He is obliged to urinate about 7 times during the day and from one to three times during the night. At times he was obliged to strain a great deal to get the stream started.

Ever since the onset of his urinary trouble he has been suffering from "dypepsia" for which he took treatment laying more stress on his gastric symptoms than he did on the urinary symptoms.

PHYSICAL EXAMINATION. A frail, delicate, poorly nourished, very anemic, man.

Eyes react to light and accommodation.

Tongue badly coated.

Breath bad.

Heart and lungs—Negative.

Abdomen—Negative.

Skin—Loss of adipose tissue. Pale color. Flaccid.

Glandular system—Bilateral inguinal enlargement.

Nervous system—Negative.

Muscular—Poorly developed musculature.

External genitalia—Negative.

Rectal—Prostate enlarged, being about the size of a large peach, smooth and soft. Both seminal vesicles palpable.

CYSTOSCOPY. No cystitis. Trabeculization of the bladder. Collar-shaped enlargement.

Retention — 120.

Urine—Clear acid, albumin, 0, sugar, 0, microscopically negative.

PHTHALEIN TEST. Mar. 27, 1911; time of appearance, 10 minutes; total output, 49.28%.

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It was decided to improve, if possible, the activity of the kidneys so as to increase the total output of phthalein. The patient was accordingly placed upon our preliminary treatment to which he very quickly responded as can be seen from the second and third tests: Mar. 30, 1911; time of appearance, 9 minutes; total output, 62.96%. Apr. 3, 1911; time of appearance, 6 minutes; total output, 71.94%.

As a result of carrying out the preliminary treatment for eight days the time of appearance came down from 10 to 6 minutes, and the total output increased from 49.28% to 71.94%. Suprapubic prostatectomy. Uneventful but protracted convalescence due to a slow wound healing because of the patient's poor general state of health.

### CASE NO. 16.—CHART II.—G. J., AGE 54

#### DIAGNOSIS.—Vesical calculus.

For the past eight months the patient has had great difficulty in passing urine, and the act of urination was accompanied by severe pain. The pain was usually confined to the bladder but often it radiated into the glans penis. He has been suffering from frequency of urination for several years. During the past eight months he was obliged to void urine about once every hour during the day and about every forty-five minutes during the night. An epididymo-orchitis which was present the patient attributed to a recent injury.

Three years ago the patient began having attacks of renal colic. In all he has had about 10 attacks. Not infrequently he passed small calculi per urethram following these attacks.

Nine years ago he had a severe attack of typhoid fever accompanied by cystitis which persisted for five months.

#### EXAMINATION

Head and neck, negative; lungs, negative; heart, hypertrophy and mitral insufficiency; abdomen, tenderness on pressure over hypogastrium. Right half of scrotum enlarged, a small discharging sinus was present at the site of a former operation.

PER RECTUM. Small non-sensitive prostate.

X-RAY. Showed shadows compatible with those of bladder stones.

STONE SEARCHER. During the examination with a searcher a distinct click was elicited.

BLOOD. Pressure, 195 — 200; leukocytes, 12, 500.

URINE ANALYSIS. Acid amber 1050 albumin; sugar 0. Red



blood-cells many. Pus cells very many. Epithelial cells. No casts.

**FUNCTIONAL TESTS.** Six milligrams of phthalein injected subcutaneously Jan. 4, 1911; time of appearance, 15 minutes; total output, 93.97% for two hours.

The second test was carried out two days later with the following result. Time of appearance, 31 minutes; total output for two hours, 94.08%.

The patient was treated locally by means of bladder irrigation of warm boric acid solution. Internal administration of urotropin. The patient was put upon forced administration of water, sitz baths and free catharsis, and a permanent catheter was inserted into the bladder part of the time.

Third test, Jan. 13, 1911; nine days after the first test. Time of appearance, 25 minutes; total output for two hours, 44.81%.

Of unusual interest in this case is the variation in the time of appearance of the drug. Instead of the preliminary treatment having the effect of shortening the time of appearance of the dye it had the opposite effect, namely, of delaying the excretion so that the first appearance of the drug in fifteen minutes which was normal, was delayed to 31 and 25 minutes, respectively. The total output of the drug was uniformly low. There was no practical difference in the amount of excretion between the first and second tests carried out, whereas the third test showed an increase of approximately 10%. From these figures, one might naturally conclude that we were dealing with badly damaged kidneys, namely, the delayed excretion and the low uniform total percentage of output. Notwithstanding these facts however, the patient was operated upon. He insisted upon an open operation under general anesthesia. We concluded that this patient was a bad risk for a major surgical operation from the following data: 1. Hypertrophy of the heart with mitral insufficiency; 2. The high blood-pressure; 3. The low readings of the phthalein test. That these deductions were correct was proven by the final outcome, as the patient died seven months after the operation from cardio-renal insufficiency. The immediate operative result was satisfactory, but before leaving the hospital marked signs of the cardio-renal incompetency were manifest.

#### CASE NO. 19.—CHART II.—H. McN., AGE 79

**PRESENT ILLNESS.** Began four years ago, the patient being obliged to arise several times during the night to void urine.

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At times he would lose a small amount of urine during the night. His condition remained the same until about four weeks ago when the patient began to have severe pain in the rectum and bladder and glans penis, being more marked in the glans. Upon admission to the hospital the patient could only pass a few drops of urine at each attempt.

### PHYSICAL EXAMINATION

Head and neck — Negative.

Heart — Slight hypertrophy.

Lungs — Somewhat emphysematous.

Abdomen — Large left inguinal hernia.

Distended bladder can be outlined by inspection and percussion, the bladder extending about one-half way to the umbilicus.

Varicose veins of lower extremity.

RECTAL EXAMINATION. Prostate very much enlarged being as large as a lemon.

CYSTOSCOPY. Trabeculated bladder. Prostate extends completely around the internal urethral orifice.

### PHENOLSULPHONEPHTHALEIN TEST.

First injection, Mar. 3, 1911. Time of appearance, 15 minutes. Total output, 2 hours, 27.83%.

Second injection, Mar. 10, 1911. Time of appearance, 11 minutes. Total output, 2 hours, 31.88%.

The usual routine preliminary treatment was carried out. The result was not as brilliant and striking as in some of the other cases. The time of appearance was reduced from 15 minutes to 11 minutes and the total output increased about 4%. These figures do not show much response to the treatment. Notwithstanding the low total output, in the presence of a normal time of appearance, perineal prostatectomy was carried out. At no time during the postoperative course did the patient show any signs of renal insufficiency and this in spite of the fact that the figures obtained made the outlook a rather dubious one. The patient died nineteen days after the operation, his death being due to pneumonia.

As with all hitherto described methods for determining functioning capacity of the kidneys, various authors have attempted to establish certain figures as standards for operation, that is if a given test shows one figure they do not operate; and vice versa, if a test shows certain results they state that one may operate with impunity. One must never lose sight of the fact that these

tests are not problems of mathematical accuracy. That many factors (extra renal) are always to be taken into consideration. That a combination of all the data obtainable must be taken into consideration, such as the patient's general physical examination, the urinary report, etc. In the case just cited let us consider the facts: here we are dealing with a patient who has had a large amount of retention extending over a period of three or four years. The phthalein test shows a good time of elimination but the work of the kidneys as regards total output is very low, 27.83%, the first reading, which is increased only 4% at the second reading. The natural inference would be that we were dealing with kidneys badly damaged, which were working at their utmost capacity and hence their work could not be increased, therefore this particular patient would be a bad surgical risk. Yet this was not at all borne out clinically. The patient was operated on, perineal prostatectomy, and at no time did he show any signs of renal insufficiency. He died nineteen days after operation, death being due to pneumonia. This can be considered as a case in which the phthalein test was indicative of badly functioning kidneys yet he showed no signs of renal insufficiency after operation.

The following case illustrates the opposite conditions, in which the test showed badly damaged kidneys, which was verified by the postoperative course.

#### CASE NO. 14.—CHART II.—J. G., AGE 70

**PRESENT ILLNESS.** Twelve years ago the patient began to have attacks of frequent and painful urination, associated with severe paroxysms of lumbar pains. These pains persisted with slight variations until two years ago at which time the patient had his first attack of complete retention, which lasted for eight hours and was relieved by a catheter. One week prior to admission to the hospital the patient had another attack of complete retention, so that a physician had been catheterizing him three times daily. This physician was finally unable to introduce a catheter because of the presence of pain, hemorrhage, etc., and he referred the patient to the hospital for immediate operation.

Upon admission to the hospital the patient's linen, skin of abdomen and external genitalia were covered with blood, the result of attempts to catheterize him. A metal catheter was easily passed and twenty ounces of foul, bloody urine were obtained. The patient was suffering from excruciating pain in the lumbar and hypogastric areas.

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### PHYSICAL EXAMINATION

Head and neck — Negative.

Heart — Mitral regurgitation.

Lungs — Very marked emphysema.

Abdomen — Distended and tympanitic. Dullness over hypogastrium corresponding to the distended bladder.

RECTAL EXAMINATION — External hemorrhoids. The prostate was soft and about the size of a large apple. Seminal vesicles not palpable.

PHTHALEIN TEST — Dec. 19, 1910. The first trace of pink color appeared forty minutes after injecting the dye; at the end of sixty minutes the color was a little more intense. At the end of two hours the urine was about the same shade as at the end of the first hour. After diluting the two hours urine no reading was possible because of the faint color.

We advised against immediate operation and recommended the preparatory treatment, which the patient and his family refused to accept because of the great suffering of the patient. As this was one of our early cases and not relying entirely on the correct interpretation of this test, we performed a suprapubic prostatectomy with the result that death followed on the third day from anuria.

In working with dyes and other function testing agents, workers along these lines have a tendency to take absolute figures into consideration rather than figures and associated conditions. We are of the opinion that the best results will be obtained in the latter instances, where both conditions are considered.

In the early part of this paper we called attention to low figures, and to the possibility of improving these figures both for total output as well as for time of appearance of the drug. The cases in which the results of the first reading were low, and the subsequent readings showing a steady rise, always gave a good prognosis and ran an uneventful postoperative course.

In some of the cases where the total output was either low or high or the time of appearance was timely or delayed or if these figures remained constant in subsequent readings during the time that the patient was under the preparatory treatment our operative results have shown that the prognosis should be guarded.

This we believe can be best explained as follows: The damaged kidneys are working at their utmost capacity and hence no matter how much preparatory treatment is given they can do

no more. This inference has usually been correct and can be exemplified by the following case.

CASE NO. 25, CHART II.—MR. W., AGE 75

DIAGNOSIS — Prostatic hypertrophy, stricture of the rectum.

PRESENT ILLNESS — For the past eight or ten years the patient has had more or less disturbance of micturition. For a great many years, at least ten or twelve, he has been obliged to arise from two to four or five times every night to void his urine. The act of urination is gradually becoming more and more difficult so that he strains a great deal in order to start the stream. Never has had hematuria.

One week prior to admission to the hospital he had an attack of complete retention being relieved by catheterization, by his family physician. For the twenty-four hours prior to his entering the hospital he was again able to void urine and it has not been necessary to catheterize him.

EXAMINATION

Very pale, poorly nourished man.

Eyes — Pupillary reflexes present.

Tongue — Dry and coated.

Neck — Negative.

Heart — Slightly enlarged to left.

Lungs — Diffuse bronchitis.

Abdomen — Skin lax and thin. The distended bladder can be seen and outlined by percussion.

External genitalia — Negative.

RECTAL EXAMINATION — A stricture of the rectum makes the rectal examination painful and difficult. Prostate is not much enlarged. Retention varied from 500—600 cc.

FIRST PHTHALEIN TEST, June 27, 1911; 6 mgs. intravenously. Time of appearance, 33 minutes. Total output, 53.20%.

SECOND PHTHALEIN TEST, 6 mgs. intravenously. Time of appearance, 39 minutes. Total output, 59.985%.

From these figures we observe a very marked delay in the time of appearance, in fact the second test required six minutes longer before the dye appeared than did the first test. The total output of drug was fairly good, 53.20% for the first test and nearly 60% (59.985%) for the second test.

He did not get along very well. He gradually lost strength and flesh, the feet and ankles began to swell and his mentality at times was disturbed. We, therefore, gave a bad prognosis even though the total output of drug was good (60%). Our

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prognosis was based on the continued delay of excretion of drug plus the clinical symptoms. The retention remained about the same in character and amount, being uninfluenced by regular catheterization and irrigations.

**OPERATION** — Suprapubic cystotomy for drainage, local anesthesia. The patient died twenty days later. Post-mortem: pedunculated median lobe size of a walnut, severe cystitis, with trabeculization of the bladder. The left kidney was very small and contracted. The right kidney contains four large abscess cavities and ten or twelve smaller abscesses in the cortex. Both ureters enormously dilated.

The post-mortem showed therefore two bad kidneys one of which was a small contracted kidney and the other a kidney containing many abscesses. Yet these kidneys were able to sustain life. The total work done by both kidneys for a given time was almost up to normal but these kidneys were not able to eliminate the dye as quickly as normal kidneys. Our inference and prognosis were correct according to these findings.

### SURGICAL LESIONS OF THE KIDNEYS

It is now generally recognized that whenever considering operative work on the higher urinary tract, it becomes necessary to estimate the functional activity of each kidney separately, which necessitates the collection of urine from each kidney.

This we have done for many years past using therefor the methods then in vogue, such as indigo carmin, phloridzin, electrical conductivity and cryoscopy of both the blood and urine.

In one of our following charts we will show the comparative results of some of these tests with the method under discussion.

### CASE No. 1.—CHART III.—N. K., AGE 30

**DIAGNOSIS** — Renal calculi.

**PRESENT HISTORY** — Patient has been suffering with typical attacks of renal colic for many years. For the past two years the pain had localized in the back over the left kidney so that a dull ache was present more or less all the time. About two years ago he had had a severe attack of pain lasting three days at which time he passed three calculi from the urethra. At intervals of from three to four months he has severe attacks of chills, fever and sweats, the temperature rising as high as 104 F.

Five weeks prior to entering the hospital he had an attack of renal colic following which he passed two calculi from the

urethra. At this time the urine was very bloody. Patient states that during the attacks he had great frequency of urination, the desire being almost constant, but he passes only very small amounts of urine.

#### PHYSICAL EXAMINATION

Head — Facial expression, dull.

Eyes — Pupils react to light and accommodation.

Tongue — Heavily coated.

Heart — Enlarged downward and outward. Second aortic accentuated.

Lungs — Negative.

Abdomen — The area corresponding to the left kidney is very prominent, bulging and tender; a large mass irregular in outline moving with respiration can be palpated. The mass is about  $2\frac{1}{2}$  to 3 times as large as a normal kidney. Right kidney negative. Double ureteral catheterization; pus on the left side, clear urine without albumin or casts on the right side. In all five phthalein tests were made, one before the operation, two after the operation, and two, eight and nine months later.

TEST No. 1, Sept. 30, 1910. Six milligrams injected subcutaneously. Time of appearance on the right side was five minutes and on the left side was 25 minutes. Total drug eliminated from the right kidney was 61.37% for two hours. On the left side the color was very faint and a reading impossible.

Lumbar nephrectomy, uneventful convalescence. The patient made a rapid and satisfactory convalescence. No signs of insufficiency of the remaining kidney. Rapid wound healing.

TEST No. 2, Oct. 25, 1910. Injected 6 mgs. of phthalein subcutaneously. Time of appearance, 20 minutes. Total output for two hours, 45.63%.

TEST No. 3, Nov. 3, 1910. Injected 6 mgs. of phthalein. Time of appearance, 20 minutes. Total output, 25.47%.

Of interest in these two postoperative tests are the two following facts:

1. That there is a marked delay in the time of appearance of the dye from the remaining kidney which prior to the operation excreted the dye in five minutes, after the operation requiring twenty minutes for excretion.

2. The progressive diminution in the total output. The remaining healthy kidney when working *with the* diseased kidney prior to nephrectomy eliminated 61.37%, after the nephrectomy

this kidney was able to eliminate only 45.63%, and at the third reading only 25.47%.

These findings were not substantiated by the clinical picture, namely, good rapid wound healing, return of appetite, gain in weight, disappearance of all urinary symptoms, patient voiding a clear urine absence of any sign of renal insufficiency. From the results of these figures we would be inclined to say that we were dealing with a progressive insufficiency of the remaining kidney. The patient left the hospital and remained perfectly well for about nine months when he was suddenly seized with severe pain in and along the right ureter. This was associated with chilly feelings and nausea and he returned to the hospital.

Upon readmission, the patient stated that he had not voided a drop of urine for twenty-four hours. The anuria persisted for another twenty-four hours; being relieved when patient passed a small stone through the urethra. Because of the progressive diminution in his previous figures a fourth test was carried out on July 10, 1911. Injected 6 mgs. of phthalein subcutaneously. Time of appearance, 5 minutes. Total output for two hours, 56.61%.

TEST No. 5, July 17, 1911. Time of appearance, 7 minutes. Total output, 60.57%.

The two postoperative tests show a marked decrease in the amount of dye excreted and in the time of appearance. Not having again examined the patient until after the passage of a stone from the remaining kidney, we are unable to say what the functioning capacity of the kidney has been during this period of time. But the dye test three days after the passage of the stone per urethra, showed again approximately the same figures as were obtained at the first examination.

#### CASE No. 11.—CHART III.—MISS J., TUBERCULOSIS OF LEFT KIDNEY

Present illness began fourteen months prior to admission to hospital, her chief complaint being frequency of urination. A physician consulted at this time diagnosed stone in the bladder which he removed through the urethra. She never saw the stone and never had any relief from her symptoms. On Dec. 7, 1909, she was suddenly seized with pain in the back near the spine, which radiated into the bladder. Since this attack she has never been free from pain. Frequency of urination 12 to 15 times during the day and 6 to 12 times during the night.



Pain is present in the urethra and neck of the bladder during urination and the pain is very much aggravated after the act is completed.

The patient further stated that she has had a cough, persisting all through the past winter and that she feels feverish every evening.

*Urine analysis.* Turbid, acid, 1012. Albumin and sugar, 0. Casts, none found, red blood cells, many. Pus cells, many. Tubercle bacilli found.

Cystoscopy shows advanced tuberculosis of bladder. Double ureteral catheterization. The urine obtained from the left catheter shows the presence of pus and tubercle bacilli. The right catheter urine is clear and free from albumin and casts.

**PHENOLSULPHONEPHTHALEIN TEST:** Six milligrams injected subcutaneously. Time of appearance, right, 7 minutes; left, 12 minutes; total drug excreted (3 hours) 47.08%; (2 hours) 16.09%.

Lumbar Nephrectomy. *Six months later patient still continues* to have urinary symptoms during *this time* having been under tuberculin treatment.

#### CASE NO. 9.—CHART III.—G. L., PUS KIDNEY.

Present illness began about four years ago with frequency of urination, he being obliged to void the urine every two hours during the day and from eight to ten times during the night. He passed small amounts of urine at each urination. The patient also stated that his urine was very turbid and had a foul odor. Since the onset of his present trouble that patient cannot sleep he has no appetite and has lost about 60 pounds in weight.

**CYSTOSCOPY** — Trigone cystitis. Thick creamy pus can be seen escaping from the right ureteral orifice. The ureteral catheter entered the right ureter for a distance of about two inches beyond which point it was impossible to pass the catheter. Only thick pus flows from the catheter. Impossible to catheterize the left ureter.

**RECTAL EXAMINATION** — Negative.

**BLOOD COUNT** — Erythrocytes, 4,776,000; leukocytes, 25,000; hemoglobin, 75%.

**PHTHALEIN TEST**, Mar. 25, 1911. Injected six milligrams subcutaneously. Time of appearance, 12 minutes. Total output for two hours, 56.20 per cent.

NEPHRECTOMY — Uneventful but rather slow convalescence.

In this case the collection of the urine was a little out of the usual routine technique employed and hence we will consider it in detail. From the right catheter thick pus only was collected which did not contain urea. Inasmuch as it was impossible to catheterize the left ureter, the right catheter was left in situ, (catheter of large size and calibre) and the urine from the left kidney obtained by means of a catheter in the bladder. The total elimination, 56.20%, therefore represents the left kidney.

At the operation a large pus sack not containing any secreting renal tissue, was removed.

In a previous communication (*Illinois Medical Journal*, p. 1911.) we suggested the possibility of using phthalein for determining the origin of a painless renal hematuria, when for example a patient is seen in an interval during which there is no hematuria. For purposes of illustration let us mention the following case.

#### CASE NO. 16.—CHART III.—MR. K.

**PRESENT COMPLAINT.** Painless hematuria of two weeks' duration. Cystoscopy showed blood coming from the left ureteral orifice. Upon admission to the hospital an entire and complete cessation of all bleeding, so that his urine looked perfectly clear.

**QUESTION.** Suppose we had not made the above mentioned cystoscopic examination and demonstrated the left side as being the side which was the source of the hemorrhage, would it be possible to do so by employing the phenolsulphonephthalein test, and thereby demonstrating a difference in the functioning capacity of the two kidneys.

**PHTHALEIN TEST.** 5/5/11. Injection of 6 mgs. intravenously.

Time of appearance.....	2 min.	2½ min.
Total drug excreted.....	49.01%	30.45%

Both ureters were catheterized. The difference in the appearance of the dye on the two sides is so slight that it cannot be taken into consideration. When we come to consider the total work of each kidney, we note that the bleeding side excreted 30.45%, whereas the well side excreted 49.01%, clearly demonstrating a difference in the functional capacity of the two kidneys.

What is the inference? In this case we are undoubtedly dealing with a recent pathological process, which has not had

time to destroy a large amount of kidney tissue. In consequence of this, the kidney function is still good, but it is impaired to such a degree that the impairment can be determined clinically by the use of this test.

Examination of the urine showed the presence of tubercle bacilli, and a guinea pig inoculation for tuberculosis was positive.

*Diagnosis.* Tuberculosis of the kidney.

#### COMPARISON CASES.

(See Chart IV.)

In a previous communication we stated that we are inclined to believe that poor operative results, or the belief that better results can be attained, have been and are the real factors in the devising of tests which are used for purposes of this kind. We further stated that considering not only all the speculation as to the value, and shortcomings of these functional tests, it has, ever since the knowledge of functional activity of the kidneys, been a problem to find and introduce a method that would overcome the objections of those who do not believe in the possibilities of methods which permit of estimating the functional capacity, which test would also at the same time be easy to carry out, and by which accurate results are obtained, and thereby overcome the opponents who believe that such a test is only of value for the particular time that it is carried out ; or again, by those who believe that all color tests are inaccurate and that functional tests often respond in kidneys that are greatly diseased, or again, do not respond in those which are apparently healthy, or again, by those who believe that to simply estimate one substance which may be eliminated should not be taken for a guide as to the power of elimination of other substances.

When a new test is brought forward the questions which naturally arise are: Is it accurate? Can it be conveniently carried out so that it can be applied clinically? What advantages does it possess or what information does it give that is not obtainable by the present methods?

With the object in view of determining whether or not any difference existed as regards time of elimination between the two commoner agents used in functional diagnostic work, namely indigo-carmin and phloridzin and phenolsulphonaphthalein, we applied all three tests in a series of eight cases selected at random from our series.

Much has been written about the time of appearance of

dyes and sugar reactions, both pro and con. Many authorities can be cited both ways: Thus Kapsammer, in discussing the phloridzin test, says that only the time of appearance of the sugar reaction should be noted. Casper and Richter lay stress on the percentage of sugar excreted in the urine collected for  $\frac{1}{2}$  to 1 hour after injecting the phloridzin. They do not attach much value to the beginning and duration of the sugar excretion. Voelcker and Joseph consider of prime importance the time of appearance of the blue color, in the indigo-carmin test.

The same pro and con discussions are found relative to methylene blue: while Achard and Castaigne attach the most importance to the time of appearance, Albarran and Bernard do not attach much importance to the time of appearance.

Rowntree and Geraghty state that the amount of drug excreted is the phenomenon of most importance. (This is not borne out by case 25, Chart III.)

In the group of cases under consideration the primary factor considered was the time of appearance of the dyes and the time of the sugar reaction. All sugar tests were made with Haine's solution. Where possible percentage readings of phthalein were made although this part was a secondary consideration, as we tried to determine whether one test would respond more quickly than another. In other words, would one of the agents show a delayed excretion or perhaps an absence, whereas the other tests the opposite?

Each patient was given 6 mgs. of phthalein, 40 mmgs. of indigo-carmin and 5 mmgs. of phloridzin. In others words, this group is to be a kind of check-up of the various agents with each other.

CASE 1.—CHART IV.—These tests were carried out ten days after an external urethrotomy for stricture. The phthalein appeared in 16 minutes; the indigo-carmin in 22 minutes and the sugar reduction occurred in 23 minutes. According to the usually accepted standards for the normal appearance of these tests, there was a delay with each drug.

CASE 2.—Paraplegia following removal of an osteoma of the spine. This patient has a very marked cystitis, and a retention of an average of 500 cc. of urine for 24 hours. All three tests show a uniform delay: in each instance the time of appearance of the dyes and sugar test being 70 minutes. From these figures one would naturally say badly damaged kidneys.

CASE 3. Impassable stricture. The phthalein was excreted in 11 minutes, the indigo-carmin in 15 minutes and the phloridzin test was positive in 11 minutes. Here the phthalein test and the phloridzin were parallel.

CASE 4. Chronic urinary retention. Both indigo-carmin and phloridzin tests delayed.

CASE 5. Prostatic hypertrophy and myocarditis. Age 62. The phthalein test was delayed 22 minutes and the indigo-carmin was positive in 20 minutes.

CASE 6. Chronic nephritis. Age 68. There was a marked edema of the lower extremities and the face. The heart was in a stage of beginning failure of compensation. Blood pressure 200 mm. Here all tests showed uniformly a well marked delay in all three tests. The phthalein test showed a delay, it being positive in 85 minutes. The indigo-carmin was positive in 51 minutes. No sugar reduction at the end of 68 minutes.

CASE 7. Pyonephrosis. This patient showed uniformly good tests with the exception perhaps of a slight delay in the indigo-carmin test.

CASE 8. Enlarged prostate with bladder stone. This patient showed a slight delay in the phthalein test compared to the indigo-carmin test.

Although eight cases is a very small number from which to draw any conclusions, especially in the carrying out of this kind of a problem, still we think that from the diversity of the cases, and that all tests were carried out under the same conditions, the same person making all the readings, etc., we may conclude that the phenolsulphonphthalein possesses no especial advantages over the other two drugs, nor does it give any information not given by these two drugs, *when we consider only the time of elimination*.

It must be borne in mind that this applies only to one phase of the test and this statement does not apply to this test on the whole. While slight variations were found in this series we do not think they were large enough to have any practical bearing. Thus the phthalein appeared first in cases 1 and 7. Whereas the dye normally appears in from 2 to 4 minutes and from 65% to 75% is excreted during the first hour, it takes his kidneys 21 minutes to eliminate, and two hours to excrete 32.171%.

Aside from the two cases just mentioned, the time of appearance varied from 2 to 6 minutes, as follows: 4 minutes in 5

CHART I.  
CASES WITHOUT RENAL LESIONS

Case	Date.	Diagnosis	General Consideration	Amount of Drug Given	FIRST HOUR					SECOND HOUR					General Remarks
					Time of appearance in minutes	Amount of Urine collected in c.c.	Reaction of Urine	Specific Gravity	Per Cent. of Drug Excreted	Amount of Urine Collected	Specific Gravity	Per Cent. of Drug Excreted	Total Per Cent. of Drug Excreted	Urea	
1	9-20-10	Varicose Ulcers of Legs		.006	10	110	Acid	1.018	44.71	78	1.014	26.165	70.875	...	Negative
2	9-20-10	Varicose Ulcers of Legs		.006	12	116	Acid	1.016	41.123	332	1.005	26.22	67.74	...	Negative
3	10-5-10	Psoriasis	Scalp, face, neck, chest, abdomen, extremities	.006	12	102	Acid	1.028	27.445	260	1.007	19.685	47.13	...	Negative
4	10-5-10	Chronic Eczema of Thigh	Face, hands and arms	.006	8	246	Acid	1.007	43.475	284	1.003	16.66	60.135	...	Negative
5	10-20-10	Gumma of Thigh	Wassermann positive	.006	12	192	Acid	1.010	47.615	200	1.006	8.77	56.385	0.7	Negative
6	9-5-10	Chronic Eczema		.006	10	...	Acid	...	...	162	1.017	57.53	57.53	1.1	Negative
7	10-3-10	Gonorrheal Epididymitis		.006	7	50	Acid	...	41.66	210	1.013	22.22	63.58	0.5	Negative
8	10-3-10	Gonorrheal Epididymitis		.006	10	90	Acid	1.011	38.46	90	1.015	13.085	51.55	2.0	Negative
9	10-3-10	Gonorrheal Epididymitis		.006	8	100	Acid	1.016	45.45	70	1.020	26.07	71.52	2.6	Negative
10	10-3-10	Gonorrheal Epididymitis		.006	9	54	Acid	...	45.45	45	...	13.865	59.315	2.4	Few pus cells
11	10-4-10	Gonorrheal Epididymitis		.006	7	144	Acid	1.010	38.66	432	1.002	30.465	69.145	1.5	...
12	10-4-10	Gumma of Skin		.006	19	66	Acid	1.038	30.46	116	1.005	35.24	55.70	0.6	...
13	10-20-10	Gonorrheal Epididymitis		.006	10	72	Acid	1.018	45.87	221	1.005	26.435	72.305	0.9	Negative
14	10-20-10	Chronic Vesiculitis		.006	8	168	Acid	1.008	31.06	355	1.003	37.875	68.935	1.0	Pus
15	9-10-10	Chr. Urethritis		.006	9	603	Acid	1.027	60.975	...	...	...	60.975	...	Collected for two hours.
16	3-15-11	Gumma of Lip.	Wassermann positive	.006	10	220	Acid	1.010	39.03	312	1.007	24.5	64.13	...	Intravenous injection of 600.

No separate reading for each hour. Reading is for two hours' collection.

Note 1, delayed excretion. Note 2, Excretion larger in second hour than in first.

Collected for two hours. Intravenous injection of 600.

CHART II  
BLADDER AND PROSTATIC CASES

Case	Date	Diagnosis	Amount of Drug Given	Time of Appearance in minutes	FIRST HOUR			SECOND HOUR			Total per cent. of Drug Excreted	Urea	Chemical and Microscopic Findings	General Remarks
					Amount of Urine Collected in c.c.	Specific Gravity	Reaction of Urine	Per cent. of Drug Excreted	Amount of Urine Collected	Specific Gravity	Per cent. of Drug Excreted			
1	.....	Vesical Calculi	.006	20	495	1.035	Alk.	42.015	.....	.....	.....	0.75	Pus	Total collected for two hours. Suprapubic cystotomy. Death from lobar pneumonia.
2	9-28-10	Cancer of Prostate	.006	12	131	1.007	Neut.	44.25	304	1.003	26.10	0.3	Blood	Radical perineal operation. Removal of prostate and Sem. Vesc.
3	10-19-10	Enlarged Prostate	.006	50	50	1.020	Alk.	.....	153	1.009	43.47	0.7	Leucocytes Pus	Recurrence. Suprapubic Prostatectomy with removal of stones. Uneventful convalescence.
4	12-2-10	Vesical Calculi	.006	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	11-3-10	Enlarged Prostate	.006	13	65	1.025	Acid	18.075	380	1.014	14.02	.....	Negative	Bottled ten years ago. No urinary symptom complaint, vague pains in limbs. Impossible to pass catheter to collect urine. Suprapubic cystotomy.
5	11-22-10	Cancer of Prostate	.006	7	.....	.....	.....	.....	.....	.....	.....	.....	Pus in large amount. Amniotic fluid.	.....
6	11-23-10	Enlarged Prostate	.006	27	60	1.026	Acid	27.85	86	1.018	19.06	.....	Negative	Suprapubic prostatectomy.
7	12-1-10	Enlarged Prostate; Papilloma; Bladder	.006	11	120	1.014	Acid	34.575	150	1.008	26.595	.....	.....	Removal of the enlarged prostate and the papilloma.
8	11-20-10	Impass	.006	10	51	.....	.....	53.415	102	1.007	10.305	.....	Pus albumen	First: before operation—external urethrotomy without guide. Second: after operation—tube in bladder through perineal wound.
9	10-12-10	Stricture; b	.006	11	84	1.013	Alk.	61.27	74	1.012	13.455	.....	Hyalin casts granular casts	.....
9	2-22-11	Median Prostate; Bar	.006	11	94	1.009	Alk.	26.57	96	1.010	24.66	.....	.....	.....
9	10-29-10	Osteoma; Spine	.006	70	620	1.008	Neut.	.....	.....	.....	.....	.....	Albumen pus	Retention 14 oz. At the end of two hours 680 c.c. of a very faintly pink urine were collected. External urethrotomy without guide.
10	12-2-10	Impass; Strict	.006	16	90	1.012	.....	29.90	91	1.015	19.53	.....	Albumen pus	.....
11	12-31-10	Cancer of the Bladder	.006	11	390	1.004	Acid	19.23	200	1.003	21.095	.....	Blood, pus casts	.....
11	1-2-11	Bladder	.006	9	334	1.003	Acid	52.08	50	1.018	11.82	.....	Pus, blood	Left hospital.
12	12-29-10	Enlarged Prostate	.006	15	35	.....	Acid	14.65	24	.....	14.57	.....	.....	Not operated.
12	12-19-10	Enlarged Prostate	.006	12	104	1.014	Acid	18.22	205	1.010	23.08	.....	Albumen casts	.....
14	12-19-10	Enlarged Prostate	.006	40	.....	.....	.....	.....	.....	.....	.....	.....	Foul & bloody Much pus	First trace of faint pink color in forty minutes. At sixty minutes the color was slightly more marked and appeared more like typical reaction. At mid of the hour the color was again faint. Could not be read. Suprapubic prostatectomy. Death from auria three days later.
15	1-21-11	Prostatic Abscess	.006	7	318	1.007	Neut.	61.725	100	1.017	10.30	.....	Much pus	Perineal prostatectomy.
16	1-4-11	Vesical Calculus	.006	15	90	1.010	Sl. Ac.	16.12	25	1.008	17.35	.....	Much pus	Suprapubic cystotomy, removal of stones.
16	1-6-11	Vesical Calculus	.006	21	72	1.014	Acid	16.61	60	1.009	17.47	.....	Much pus	.....
16	1-13-11	Vesical Calculus	.006	23	72	1.014	Acid	27.79	60	1.009	17.47	.....	Much pus	.....
									284	1.016	7.03	.....	.....	.....

CHART II. — (Continued.)

Case	Date.	Diagnosis	Amount of Drug Given	Time of appearance in minutes	FIRST HOUR			SECOND HOUR			Total Per Cent. of Drug Excreted	Urea	Chemical and Microscopic Findings	General Remarks
					Amount Urine Collected in c.c.	Specific Gravity	Reaction of Urine	Per Cent. of Drug Excreted	Amount Urine Collected	Specific Gravity	Per Cent. of Drug Excreted			
17	1-24-11	Enlarged Prostate	.006	22	48	1.020	Acid	14.45	30	.....	13.7	.....	Few pus cells No casts	Broken compensation, extreme dyspnea, bronchitis, swelling of lower extremities.
18	1-25-11	Myocarditis	.006	.....	35	1.024	Acid	14.93	130	1.012	23.04	.....	Pus, No casts	Dilatation of strictures.
19	3-3-11	Stricture	.006	15	147	1.014	Acid	13.79	147	1.013	14.04	.....	Pus	Perineal prostatectomy. Death 19 days later, due to pneumonia.
20	3-10-11	Enlarged Prostate	.006	11	180	1.013	Acid	15.2	160	1.006	16.18	.....	Pus, Blood	Suprapubic prostatectomy. Uneventful recovery. Total for three hours.
21	3-9-11	Enlarged Prostate	.006	.....	211	1.008	Alk.	24.245	200	1.010	24.38	.....	Pus	External urethrotomy.
22	3-12-11	Urethral Stricture	.006	7	300	1.009	Acid	51.54	380	1.003	16.34	.....	Pus	Suprapubic prostatectomy. Uneventful recovery.
23	3-27-11	Enlarged Prostate	.006	10	400	1.004	Neut.	31.33	510	1.004	15.95	.....	Negative	Suprapubic prostatectomy. Uneventful recovery.
24	3-30-11	Enlarged Prostate	.006	9	328	1.004	Neut.	46.51	45	.....	14.45	.....	Pus, Blood	Suprapubic prostatectomy. Phlebitis, left saphenous vein.
25	4-4-11	Enlarged Prostate	.006	6	250	1.005	Alk.	35.51	60	1.004	7.03	.....	Pus	Suprapubic prostatectomy, auneventful recovery.
26	4-12-11	Enlarged Prostate	.006	6	30	1.010	Alk.	35.51	54	1.008	26.41	.....	Much pus Detritus	Retention 500 c.c. Catheterization very painful. Gradual loss of flesh and strength. Swelling of feet and disturbed mentality. Suprapubic cystotomy for drainage. Local anesthesia. Prostate not removed. Died in twenty days anorexia. Necropsy. Left kidney small and contracted. Right kidney containing four abscess cavities and ten small abscesses in cortex. Both ureters enormously dilated.
27	4-24-11	Enlarged Prostate; Vesical Calculi	.006 I.V.	8	54	1.032	Acid	58.5	62	1.030	17.65	0.7	Pus	Suprapubic cystotomy. Removal of stones. Refused removal of prostate.
28	6-27-11	Enlarged Prostate	.006 I.V.	33	230	1.008	Neut.	24.15	70	1.015	29.05	.....	Pus	Refused operative treatment.
29	7-6-11	Prostate Rectal Strict.	.006 I.V.	39	150	1.012	Neut.	43.475	110	1.007	16.51	.....	Pus	Suprapubic prostatectomy. Recovery complicated by left-sided epididymitis.
30	7-22-11	Enlarged Prostate; Vesical Calculi	.006 I.V.	4	80	1.015	.....	34.245	100	1.005	13.09	.....	Pus	Suprapubic prostatectomy. Convalescence complicated by right-sided epididymitis. The first reading represents one hour and twenty minutes.
31	7-22-11	Enlarged Prostate	.006 I.V.	4	170	1.010	Acid	26.875	155	1.008	13.81	.....	Pus	Non-operative treatment.
32	7-22-11	Cancer of Prostate	.006 I.V.	4	170	1.010	Acid	26.875	155	1.008	13.81	.....	Pus	Suprapubic cystotomy and removal of tumor.
33	6-24-11	Enlarged Prostate	.006 I.V.	5	90	1.010	Acid	36.23	.....	.....	.....	.....	Pus	Suprapubic prostatectomy. Convalescence complicated by right-sided epididymitis. The first reading represents one hour and twenty minutes.
34	7-12-11	Enlarged Prostate	.006 I.V.	6	200	1.007	Acid	68.45	.....	.....	.....	.....	Pus	Non-operative treatment.
35	7-21-11	Enlarged Prostate	.006 I.V.	4	230	1.005	Acid	51.95	500	1.005	9.667	.....	Pus	Suprapubic cystotomy and removal of tumor.
36	7-22-11	Enlarged Prostate	.006 I.V.	21	190	1.010	Alk.	19.45	100	1.008	13.26	.....	Pus	Suprapubic cystotomy and removal of tumor.
37	8-1-11	Cancer of the Bladder	.006 I.V.	4	218	1.010	Acid	43.25	.....	.....	.....	.....	Pus	Suprapubic cystotomy and removal of tumor.



cases; 3 minutes in 3 cases; 2 minutes in 2 cases; 6 minutes in 2 cases; 5 minutes in 2 cases;  $3\frac{1}{2}$  minutes in 1 case; 6 and 4 minutes in 1 case (ureteral catheterization.)

The total amount of dye eliminated during the first hour varied from 31.34% to 79.46%.

In seven out of these twenty cases the urine was collected for a second hour. The amount excreted during the second hour varied from 9.68% to 29.05%.

CASE 10.—CHART VI.—The patient suffering from an enlarged prostate, excreted 24.15% during the first hour, and 29.05% during the second. We have also noticed the same phenomenon, where more dye is excreted during the second than the first hour, when administering the drug intramuscularly. This is the only case in the intravenous series in which this occurred.

The indigo-carmin appeared first in cases 4, 5, 6 and 8. The phloridzin sugar reduction occurred first in no cases alone. Combined with the phthalein, it was first in case 3. In case 2 phthalein and indigo-carmin were positive in 70 minutes and the sugar reaction failed to appear in seventy minutes.

#### CASES IN WHICH THE URINE WAS COLLECTED FOR THREE HOURS.

(Chart V.)

As can be seen from the preceding charts in all of the cases urine was collected for two hours.

We decided to collect the urine for three hours in some of the cases and study these in a group by themselves, to determine if possible, whether or not the elimination of the dye is complete in two hours, and if not, how much is excreted in the third hour, and to determine the practical value. This significance of this will be taken up later on.

In all six cases were studied, which will be briefly mentioned below.

CASE 1. Gumma of lip. The patient's kidneys, as far as we could determine, were normal. Four days after the administration of 606 intravenously the phthalein test was carried out with the following results:

Output for the first hour.....	39.63%
Output for the second hour.....	24.5 %
Output for the third hour.....	10.84%

CHART III  
SURGICAL KIDNEY CASES

Case	Date	Diagnosis	Amount of Drug Given	Time of Appearance in minutes	FIRST HOUR			SECOND HOUR			Urea	Chemical and Microscopic Findings	Remarks
					Amount of Urine Collected in c.c.	Specific Gravity	Reaction of Urine	Percent of Drug Excreted	Amount of Urine Collected	Specific Gravity	Percent of Drug Excreted		
1	9-30-10	Kidney Stone, (Left)	.006	L. 25	70	1.017	Acid	34.21	15	0	61.37	Negative	On the left side the color was very faint pink. Reading impossible. Nephrectomy. Large pus kidney with stone. Progressive diminution in total amount of drug excreted and delayed time of appearance 7-8-11—patient returned, suffering from anuria, lasted forty-eight hours. Then passage of stone with relief of symptoms. After this the last two tests were carried out. Specimen from right kidney impossible to catheterize right side. Specimen from left kidney forty-eight hours ago shows only a trace of urea, much pus and some blood.
2	10-14-10	Pyelonephritis, Stone (Right)	.006	R. 12	43	1.014	Acid	44.215	63	1.016	59.3357	Blood Epithelium 4.0 Trace pus albumen	
3	11-23-10	Renal Calc. (Right)	.006	R. 11	.....	.....	.....	.....	.....	.....	.....	.....	X-ray negative. Recovery uneventful. Both (Only elimination ureters catheterized. Nephrectomy. } time noted. No ureters catheterized. Recovery uneventful. Both ure- } (in Nos. 3 and 4)
4	11-10-10	Tuberculosis Right Kidney	.006	R. 6	.....	.....	.....	.....	.....	.....	.....	Tubercle bacilli	X-ray negative. Right-sided renal or ureteral calc. Im-
5	11-8-10	Ureteral Ob-struct. Stone	.006	L. 6 R. 0	70	1.023	Acid	20.08	102	1.020	33.32	Negative	possible to catheterize right side more than one-half inch. Im-
6	1-16-11	L. Ureteral Obstruction	.006	12	130	1.014	Acid	43.47	150	1.010	64.495	.....	Further examinations—patient died. Mixed urines used for estimation after having passed a shadowgraph catheterized the left ureter. The urine collected per ureteral cath-
7	2-24-11	Pyelonephritis, Left	.006	L. 12 Bladder	50	1.010	Acid	0	230	1.015	54.94	.....	ter was so pale at the end of two hours that a reading was impos-
8	3-25-11	Large Pus Kidney	.006	12	45	1.012	Acid	21.41	89	1.012	56.30	Pus	sible. The catheter in bladder representing the right kidney urine shows an elimination of 54.94 per cent of dye by the well kidney. From catheter in bladder. No urine from right ureteral catheter. Nephrectomy. Large pus sac, no secreting tissue. Convalescence slow but uneventful.
9	3-28-11	Hematuria	.006	R. 54	.....	.....	.....	.....	.....	.....	.....	Few Pus and Blood	Both ureters catheterized. Only elimination time noted.
10	3-31-11	Tuberculosis Kidney, Left	.006	L. 6 R. 7	100 225	1.009 1.018	Acid Acid	3 6.3	80 105	.....	6.32 16.09	Tubercle bacilli in urine	Collected for three hours, excreting 30.99 on right side during the third hour; total for three hours 47.48. Urine from catheter in bladder shows 4.42. Nephrectomy. Uneventful convalescence.
11	1-6-11	Pyelo-nephritis	.006	3	130	1.021	Acid	59.1	.....	.....	.....	.....	Nephrectomy. Uneventful convalescence.
12	7-16-11	Hyper-nephroma	.006	R. 6 B. 6	118 89	1.007 1.008	Acid Acid	9.87 5.55	.....	.....	31.34	.....	Double ureteral catheterization. Collected for one hour. B is blad-
13	8-15-11	Hydronephrosis	.006	R. 8 B. 2	82 134	1.005 1.005	Acid Acid	15.92 10.5	.....	.....	.....	.....	der urine, leakage along both ureteral catheters.
14	8-17-11	Ureteral Stone	.006	R. 2 L. 2	88 88	1.009 1.015	Acid Acid	23.63 23.30	.....	.....	39.93	.....	Double ureteral catheterization. B is bladder urine, representing leakage along side the ureteral catheters.
15	8-9-11	Painless Hematuria	.006	R. 44 L. 4	42 54	1.012 1.014	Acid Acid	16.415 16.415	26 22	1.018 1.016	46.91 22.515 21.371	.....	Double ureteral catheterization. Collected for "thirty" minutes from each kidney.
16	5-5-11	Tubercu-losis, Left Kidney	.006	R. 2	234	1.012	Acid	49.01	.....	.....	43.406	Tubercle bacilli	Double ureteral catheterization. Guinea pig inoculation—positive.
17	4-13-11	Tumor (?) Right Kidney	.006	L. 24 L. 6 R. 22	31 62	1.014 1.012	Acid Acid	30.45 17.38 19.145	.....	.....	79.46 36.505	Blood Ca. Oxalate Fine gr. casts	

This gives a total of 74.97% for the three hours. As would naturally be expected in healthy kidneys, the first hour's excretion is the highest, with a gradual diminution for the following hours.

CASE 2. McN. Urethral strictures. External urethrotomy.

Time of appearance, 7 minutes.

Output for first hour..... 51.54%

Output for second hour..... 16.34%

Output for third hour..... 24.27%

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Total output ..... 92.15%

Of interest in this case are the high total output, and the fact that during the third hour about 8% more was excreted than during the second.

CASE 3. H. McN. Enlarged prostate. There were two tests made before operating this patient, one week elapsing between tests. The time of appearance of the drug being 15 and 11 minutes respectively. The result of the first test showed respectively 13.79%, 14.04%, and 12.15%, making a total for the three hours of 39.98%. The figures obtained as a result of the second test were 15.2%, 16.18% and 12.5%, making a total of 43.88%. The most striking fact about these figures is that they do not vary; i. e., we do not see the usual high first hour and low second hour, and as we would naturally expect, still lower third hour. From the figures it appears that the kidneys were doing their utmost work for each hour, and that we were probably dealing with badly damaged kidneys.

CASE 4. Mr. S. Age 81. Suprapubic prostatectomy. Uneventful recovery. Unfortunately, the time of appearance of the coloring matter was not noted in this case. The output for the first hour being only 24.245%, it was decided to read the second and third hours together lest each one might be rather pale. The second and third hours' output was 24.38%, slightly more than the first hour alone. In spite of the low general output, this 81-year-old patient withstood a suprapubic prostatectomy, making an uneventful recovery.

CASE 5. Mr. L. In this case during the third hour only 6.17% were excreted, the lowest in this group. Here the second hour excreted 34.72%, whereas the first hour's output was but 21.48%. This was an operative case which showed that one kidney was devoid of all renal tissue.

CHART IV  
COMPARATIVE TABLE

Case	Date.	Diagnosis	Phenolsulphonephthalein				Indigo Carmin		Phloridzin		Remarks
			Amount Given	Time of appearance	Per cent. of drug Excreted	Amount Given	Amount Given	Time of appearance	Amount Given	Sugar Reduction positive in minutes	
1	12-12-10	Impasse; Stricture	.006	16	49.52	0.4	0.4	22	.005	23	Post-operative test made ten days after external urethrotomy.
2	11-28-10	Osteoma of Spine. Paraplegia	.006	70	Could not estimate	0.4	0.4	70	.005	None in 70 minutes	
3	12-12-10	Impasse; Stricture	.006	11	74.725	0.4	0.4	15	.005	11	
4	12-20-10	Chr. Urinary retention	0	0	0	.04	.04	17	.005	29	
5	1-24-11	Prostatic Hypertrophy	.006	22	28.15	0.4	0.4	20	.....	....	
6	1-24-11	Chronic Nephritis	.006	85	4.9	0.4	0.4	51	.005	None in 64 min.	At end of thirty minutes the urine was a very pale blue—same shade as after 20 minutes.
7	3-25-11	Nephroptosis R	.006	12	2 hrs. 56.20 3 hrs. 62.37	0.4	0.4	17	.005	15 trace	Blood pressure 200 mm. Edema of extremities and face, marked pallor, mitral murmur.
8	4-12-11	Enlarged Prostate; Vesical Calculus	.006	15	.....	0.4	0.4	14	.....	20	Very strong reaction.

CHART V.

CASES IN WHICH URINE WAS COLLECTED FOR THREE HOURS

Case	Date.	Diagnosis	Amount of Drug Injected	Time of appearance in minutes	Per Cent. of Drug Excreted			Total Per Cent. of Drug Excreted	Remarks
					1st hour	2nd hour	3d hour		
1	3-15-'11	Gumma of lip	.006	10	39.63	24.5	10.84	74.97	Wassermann positive. Intravenous 600 given. Test made four days later.
2	3-12-'11	Urethral Stricture	.006	7	51.54	16.34	24.27	92.15	External urethrotomy. Uneventful recovery.
3	3-2-'11	Enlarged Prostate	.006	15	13.79	14.04	12.15	39.98	Perineal prostatectomy. Death due to pneumonia.
4	3-10-'11	Enlarged Prostate	.006	11	15.2	16.18	12.5	43.88	Second and third hours' specimens read together.
5	3-9-'11	Pyonephrosis	.006	7	24.345	.....	24.28	48.625	This urine obtained per catheter from healthy aide. Nephrectomy.
6	3-25-'11	Renal Tuberculosis	.006	12	21.48	34.72	6.17	62.37	Double-sided ureteral catheterization. Nephrectomy.
7	3-31-'11		.006	R. 7 L. 12	6.30 3.0	9.79 3.32	30.99 0	47.08 6.32	

Case	Date	Diagnosis	Amount of Drug Given	Time of Appearance in minutes	FIRST HOUR			SECOND HOUR			Urea	Chemical and Microscopic Findings	General Remarks
					Amount of Urine Collected in c.c.	Specific Gravity	Reaction of Urine	Per cent of Drug Excreted	Amount of Urine Collected	Specific Gravity	Per cent of Drug Excreted		
1	4-25-11	Enlarged Prostate; Vesical Calculi	.006	5	54	1.032	Acid	58.5	62	1.030	17.65	Pus Blood	Suprapubic prostatectomy and removal of calculi. Death due to pneumonia.
2	4-28-11	Contracted neck of the bladder	.006	34	590	1.003	Acid	60.8			60.8	Negative	No clinical signs of kidney lesions; i. e., nephritis.
3	4-28-11	Variocoele; Sex. Neurasthenia	.006	6	60	1.015	Acid	78.1			78.1	Negative	No signs of nephritis.
4	4-27-11	Sex. Neurasthenia	.006	L. 2	100	1.010	Acid	39.4				Negative	No signs of nephritis.
5	5-5-11	Tuberculosis L. Kidney	.006	R. 2	234	1.012	Acid	49.01			72.06		Double ureteral catheterization. Tubercle bacilli found in the urine.
6	5-4-11	Enlarged Prostate	.006	L. 3	73	1.011	Acid	30.45			79.46	Pus and pus	Suprapubic prostatectomy. Uneventful convalescence.
7	5-6-11	Contracted neck of bladder	.006	R. 4	27	1.032	Acid	23.38			46.02	Negative	Double ureteral catheterization. No evidence of nephritis.
8	5-3-11	Chronic Urethritis	.006	R. 3	200	1.003	Acid	22.66				Few pus cells	Double ureteral catheterization. Bladder urine represents leakage along the ureteral catheters.
9	6-1-11	Pus; Kidney	.006	33	220	1.004	Acid	20.19			67.15		Nephrectomy. Uneventful convalescence.
10	6-27-11	Enlarged Prostate	.006	33	150	1.003	Alk.	34.15	70	1.015	29.05	Pus. Blood	Retention 80 to 90 c.c. Catheterization very painful. Operation refused. Swelling of legs.
11	7-16-11	Hyperneph R. Kidney	.006	R. 6	148	1.002	Acid	9.57	110	1.007	16.51	Few blood cells	No albumen—no casts.
12	7-22-11	Cancer of Bladder	.006	4	300	1.007	Acid	15.92	155	1.008	13.81		Suprapubic cystostomy—removal of calculi.
13	7-22-11	Enlarged Prostate; Vesical Calculi	.006	4	80	1.015	Acid	34.245	100	1.005	13.09		
14	6-24-11	Enlarged Prostate	.006	5	90	1.013	Acid	36.23			36.23	Pus	
15	7-18-11	Enlarged Prostate	.006	6	200	1.007	Acid	66.45			68.45		
16	7-22-11	Enlarged Prostate; Tubes	.006	21	190	1.010	Alk.	51.95	500	1.005	9.687		Well marked case of tubes dorsalis. Cystoscopic examination shows two lateral lobes. Retention diminished from 600 to 75 c.c. daily.
17	8-1-11	Cancer of the Bladder	.006	4	218	1.016	Acid	43.25			43.25		
18	8-15-11	Hydronephrosis	.006	L. 2	82	1.005	Acid	10.05					
19	8-17-11	Ureteral Stone	.006	R. 2	88	1.004	Acid	16.55			39.93		
20	8-9-11	Painless Hematuria	.006	R. 4	42	1.015	Acid	16.445	26	1.014	6.00		"Thirty minute" specimen.
				L. 4	6	1.014	Acid	16.445	23	1.016	4.936		

CASE 6. Miss J. Tuberculosis of the left kidney. The diseased kidney excreted the dye in 12 minutes, 6.32% for the 1st and 2d hours, and none for the third hour. The well side excreted the dye in 7 minutes with the following results: 6.3%, 9.79%, 30.99%, total for three hours 47.08%. A markedly delayed excretion is present on the well side. Approximately two-thirds of the dye being excreted in the third hour.

INTRAVENOUS ADMINISTRATION.

(Chart VI.)

We have administered the phthalein intravenously in twenty cases. The technique of administration has been described above. Its simplicity, its prompt appearance in the urine and the fact that the elimination is usually complete in one hour, are advantages distinctly in favor of this method of administration.

These twenty cases include five of renal lesions, namely: Painless hematuria, pyelonephrosis, hydronephrosis, hypernephroma and tuberculosis of the kidney; one case of ureteral stone. The lesions of the lower urinary tract were: Enlargement of the prostate 7 cases, cancer of prostate 1, carcinoma of the bladder 1, contracture of the vesical neck 2, sexual neurasthenia 2, chronic urethritis 1.

The time of appearance varied from 2 to 39 minutes. The patient in whom it took the dye 39 minutes to appear (Chart III, Case 10) was suffering from an enlarged prostate and has been described in detail with the prostatic cases on page—

Case 16, Chart VI. Patient has been suffering from bladder trouble for several years. Upon admission to hospital his retention was about 600 cc. daily. Under treatment this has diminished from 600 to 75 cc. Besides suffering from an enlarged prostate, he has well marked signs of tabes.

Time of appearance of drug.....	21 min.
Output for first hour.....	19.45
Output for second hour.....	13.26

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Total output for two hours ..... 32.71

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

## INTRAVENOUS ADMINISTRATIONS OF SUBLIMATE, HYRGOLUM, OXYCYANIDE, AND SUBLAMINE IN SALVARSAN RELAPSES

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**D**ESPITE the fact that salvarsan is the most effective present day remedy for the successful treatment of syphilis, it does not possess, in itself, properties of unfailing efficacy. Prolonged and more extensive observations have demonstrated that a certain proportion of cases which are treated with salvarsan, and only with salvarsan, develop well defined relapses of both clinical and laboratory character. The clinical relapses have manifested themselves for the greater part, at least in the writer's experience, in hospital and dispensary practice, in cases where patients voluntarily withdrew themselves from observation and surveillance as soon as clinical manifestations disappeared, which was usually within a few days after the administration of the remedy. The venereal wards of our public hospitals are beginning to show a relatively large quota of severe relapses after an interval of four to eight months after the administration. In private practice clinical relapses have been more infrequent in character because patients are more carefully observed, treatment more promptly repeated, or materially aided by other measures. These measures are for the most part, some form of previous or subsequent mercurial treatment and careful Wassermann complement fixation control. In private practice, therefore, clinical relapses are relatively less frequent and less severe in character.

A few brief months have already demonstrated that there is a marked contrast in patients of dispensary and hospital practice, compared with those of private practice. An additional few months will demonstrate still greater and more pronounced contrast. This contrast will probably depend, not so much upon whether salvarsan was administered once, twice or even thrice, or the previous or subsequent administration of mercurials, as upon whether or not a careful scientific control such as the complement fixation test was properly exercised. The writer wishes to reiterate what he has set forth in a previous contribution<sup>1</sup> on the subject namely: "To treat a case of syphilis, without the aid of a

<sup>1</sup> Heidingsfeld, New York Medical Journal, May 4, 1912.

Wassermann control, is virtually attempting to sail a ship on the boundless main without the directing aid of compass and rudder. It is virtually pure guesswork. The treatment of syphilis in the past has been largely of that character; it will remain so largely in the future, unless some control such as the Wassermann is exercised. Without its aid, the writer would lack assurance whether his case was progressing favorably or unfavorably, whether the treatment should be repeated or discontinued, whether the same or some other therapeutic agent should be called into play, whether the prognosis augurs favorably or unfavorably, whether early marriage can be encouraged or discouraged. A careful and properly made complement fixation test, gives all this wealth of information, without which the treatment of the case must remain more or less empirical and tentative in character."

#### SEROLOGICAL ANALYSIS

Seventeen hundred and ninety (1790) Wassermann tests were made in 480 cases, and salvarsan was administered 555 times from Dec. 25, 1910, to Feb. 1, 1912. A deep muscular injection of the alkaline solution was employed only in the first twenty-eight cases, during a period of twenty-one days, from Dec. 27, 1910, to January 17, 1911. The remainder, with few exceptions, infants in particular, were intravenous administrations of Salvarsan, almost uniformly 0.6 gram in dose to adults, male and female alike. The administrations were made in ambulatory private practice, during the consultation hour, and not a single administration was attended by any incident of untoward character. A Wassermann examination was made immediately prior to the administration and was repeated wherever it could be conveniently arranged, every thirty days, until the blood was negative in character. When the fixation test was once negative, the examination was repeated in sixty days. If again negative in ninety days, and then at three to six months intervals, in accordance with the special indications of the case. It is needless to state that the fixation examinations could not be pursued in all the cases. Some of the patients absented themselves voluntarily; others owing to foreign residence or enforced absence, involuntarily. The vast majority, however, reported regularly and the serological study could be much more carefully and consistently carried on than is ordinarily permissible in clinical and hospital practice. In only 148 cases of the 480 treated was there a record of but one Was-



sermann test, and a very large percentage of these received salvarsan for a period less than sixty days.

The analysis is as follows:

A strong positive was converted to negative in 144 cases; a weak positive or practically negative to negative in 86 cases; a strong positive became negative, relapsed to strongly positive and eventually became negative in 17 cases; a negative became strongly positive and eventually negative in two cases; a strong positive remained unchanged in 42 cases; a strong positive became negative and relapsed to a strong positive in 13 cases; a weak positive or negative Wassermann became strongly positive in five cases. Briefly summarized, 249 cases progressed from positive to negative Wassermann, or 61% (eliminating the 148 cases which could not be followed with a complement fixation test; 23, or 5%, improved; 60, or almost 14%, showed little or no material improvement. Salvarsan was administered twice in 65 cases, thrice in five cases.

From the above it is evident that salvarsan of itself, failed to effect, at least from a complement fixation standpoint, a favorable result in almost 40% of the cases treated. This observation is amply confirmed by the fact that cases in hospital and dispensary practice which showed clinical relapses also manifested a strongly positive Wassermann. Relapses of a clinical nature have also been observed in private practice, but they have been relatively few and of rather mild type, for the reason that salvarsan was promptly repeated in all cases in which the complement fixation test showed no early and material improvement.

The writer, for over a year, up to February 4, 1912, relied exclusively upon salvarsan to effect a cure in all the cases which came under his personal observation, except such cases as had received mercurials and other forms of anti-syphilitic medication prior to the first administration of salvarsan. The study of these cases reveals that many patients who had received some form of previous medication showed a negative complement fixation test of more prompt and permanent character than those who had received no previous treatment of that character. There were exceptions to this rule, however, insofar as there were not a few cases in which the fixation test remained strongly positive in spite of careful and prolonged previous mercurialization. Clinical observation also demonstrated that repeated salvarsan administration did not effect material improvement in quite a large percentage of cases. Some of these, which had received

two and even three administrations of salvarsan, were given a course of deep muscular injections of gray oil. Some of these showed prompt and material improvement from a complement fixation standpoint, and progressed rapidly to a negative Wassermann. There were not a few cases, however, in which the combined treatment showed little, if any improvement. The writer, realizing therefore, that a certain percentage of cases would fail to proceed to a satisfactory complement fixation test in spite of salvarsan administrations supplemented with deep-muscular injections of gray oil, endeavored to seek a possibly more effective method of mercurial treatment. From Feb. 4 to Feb. 17, 1912, he employed intravenous administrations of 1-1000 bichloride in ten cases, in doses varying from 1-3 to 1-2 grain of sublimate. The administration in all these cases was well tolerated and unattended by any incident of untoward nature in a general way. The treatment was repeated once weekly in only two of the cases. The cases were selected from patients who had received from one to three repeated administrations of salvarsan and had failed to progress to a negative Wassermann in spite of deep muscular injections of gray oil after they had been observed over a considerable period of time. All of the cases showed material improvement in the Wassermann scale, but the writer was obliged to discontinue this form of treatment because the administration was attended in every instance by a phlebitis which was localized to the vein into which the remedy was administered and was extensive enough to cause its complete obliteration. The writer next employed intravenous administrations of oxycyanide of mercury, 1-1000 from Feb. 20 to March 14, in dosage of 1-3 to 1-2 grain. This remedy was both generally and locally well tolerated with the exception that some of the patients complained of frequent micturition, following the administration. Urinary examination in these cases was negative in character. The administration effected some material improvement in the Wassermann scale. The writer next tried, from March 14, to April 9, hyrgolum, or colloidal mercury, in 1-1000 and 1-500 dilutions and in dosage varying from 1-3 to one grain, in a series of 92 administrations. This preparation was also locally and generally well tolerated except in a few instances, where one grain of hyrgolum, 1-500 dilution, produced rather severe symptoms on the part of the gastro-intestinal tract, namely, diarrhoea, vomiting, nausea, and, in one instance, bloody stools. In view of the fact that bichloride of mercury effected the most material and prompt im-

provement, the writer endeavored to use sublimine (Schering and Glatz), a remedy which is reputed, by its manufacturers, to possess the therapeutic properties of sublimate with none of its intolerant features. The remedy was used in a series of twelve cases, from April 22 to April 24, a period which is as yet, too recent to permit an estimation of its results from a fixation standpoint. The remedy was used in 1-1000 dilution in 1-3 of a grain dosage. The intravenous administration of sublimine was followed in some of the cases by a mild degree of phlebitis, not quite as intense as that produced by sublimate, but severe enough to disqualify its intravenous administration. It was very poorly tolerated in 2-3 of the cases treated and in a few instances, produced symptoms of a very severe and distressing nature. Some of the patients complained of severe nausea and vomiting, vertigo and syncope for the first twenty-four to forty-eight hours following the administration. In one or two instances, there were bloody stools, followed by general weakness, loss of appetite and enervation, covering a period of four or five days after the administration. A few of the patients complained of no marked discomfort, but on the whole, it proved to be a poorly tolerated remedy.

! Of all the different forms of intravenous administration of mercurials, employed by the writer, the oxycyanide of mercury, 1-1000 dilution and in .02 gram dosage, was best tolerated. In a few patients this remedy was increased to 1-500 in strength and in .04 gram dosage, with some evidence of intolerance on the part of the patient. A number of these patients received these various preparations at intervals in combination, and under the circumstances, the writer is unable to ascertain what degree of improvement could be justly attributed to one or the other of these remedies. The administration covered sixty-nine (69) cases in which salvarsan had effected slow and indifferent results from a Wassermann standpoint. Some of these cases had received as many as three repeated administrations of salvarsan and mercurials in other forms, without showing any material improvement, from a complement fixation standpoint. A number of these cases have progressed, under this form of administration, from a strong positive to a negative or almost negative Wassermann.

Briefly summarized, the cases present the following: Intravenous administrations of bichloride, 11; hyrgolum, 92; oxycyanide of mercury, 114; and sublimine, 15. Five cases progressed to an absolutely negative Wassermann under the intrav-

enous administration of hyrgolum; four under the intravenous administration of oxycyanide, six under the influence of both oxycyanide and hyrgolum, and one under the influence of sublimine. Ten cases have shown material improvement and the rest remained unchanged, or have been observed too short a time to permit an estimation from a complement fixation standpoint. Sixteen cases, or 23% of the sixty-nine cases which have failed to promptly become negative under salvarsan and mercurials in other form, have become Wassermann negative, and ten, or almost 15% have shown material improvement. These results are relatively low because many of these cases have been treated too short a time to determine the character of the Wassermann reaction. The writer feels sufficiently encouraged, from his results, to recommend this method of treatment for further observation, study and confirmation at the hands of others who are engaged in the treatment of these cases. He can only recommend, however, the oxycyanide of mercury when administered in dilutions of 1-1000 in strength, and in dosage not exceeding .02 gram. Great care should be exercised in its careful and proper administration. The vein must be carefully and properly entered without incision, to prevent disfigurement. Great care must be exercised not to produce an effusion of the remedy outside the vein. Such an accident, while not immediately as painful as that of salvarsan, is prone to produce an inflammatory infiltration of rather severe and distressing character. The method recommends itself, not as yet as a routine measure, but as a valuable adjuvant in all obstinate cases which have been carefully controlled from a complement fixation standpoint. Its results are prompt, its administration is unattended with any serious difficulties and any particular danger. A wider, more extensive experience and a more prolonged and careful observation, will determine to what extent it can be employed as a routine measure in the successful treatment of syphilis. The writer feels assured that it commends itself to all who are interested or imbued with a spirit of investigation in the therapeutics of syphilis.

In closing the writer wishes to express his thanks to Fräulein Erna Sommerkorn, formerly of the Krankenhaus Friedrichshain, Charité Krankenhaus, and Private Laboratory Wolff-Eisner, Berlin, for the carefully made Wassermann examinations and for her personal aid and that of Dr. Clarence A. Ihle, in the compilation of the cases.

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## DEPARTMENT OF SEXOLOGY

The Editors with the Collaboration of Dr. C. P. Oberndorf.

### STERILIZATION AND THE NEUROPATHIC CONSTITUTION

At the termination of an interesting article on "Neuropathic Inheritance," Rosanoff (*Journal of A. M. A.*, April 27, 1912) in discussing the elimination of hereditary taints through surgical procedures, remarks that "without doubt this process could be hastened by a well-organized eugenics movement; but it would seem that matters have come to such a pass that we may have the burden, not of spreading a propoganda, but of holding back enthusiasts from premature and ill considered action." The laws passed in the Western states providing for sterilization have all remained practically dead, and "the net result of such legislation has been, so far, no good and much harm."

He further calls attention to observations of Lombroso of the close connection between the neuropathic constitution and genius; and asserts that if it be true, as Lombroso maintains, that genius is a neuropathic manifestation, it "must be obvious that wholesale sterilization would hardly be a measure of wisdom" as "genius must, at any cost, be allowed to thrive and is no matter for mediocrity to meddle with."

### MASKS OF HOMOSEXUALITY

*William Stekel (Zentralblatt für Psycho-analyse, Vol. 2, No. 7)* who is an extremist of the psychoanalytic school, maintains that of all sexual components, homosexuality is the one most completely subjected to repression, so that it becomes estranged from our consciousness. But he has been unable to discover any satisfactory explanation for the existence of this phenomenon. The attempt to conceal this homosexual component may, in some individuals, result in neurotic symptoms which, it is well known, arise as a compromise between cravings which are repressed, and the desire to attain the normal. Such compromises, however, lay bare to the analyst quite as much as they are intended to conceal; so that in many of them the homosexual component may be readily discerned.

Men who are strongly homosexual will extol women who make a strongly masculine impression — large, big-boned, flat-breasted women, with bony faces which have an energetic expression; or women with short hair, a deep voice, and a tendency to a beard or moustache. Thus the repressed homosexual cravings are partially gratified by the union of certain masculine traits in a feminine personality. Where nature does not provide such characteristics in a woman, external ornamentation may be utilized to intensify such a representation, but

such ornaments selected are symbolic of actual male appurtenances. Thus these men fall in love with women in riding habits, in bloomers, or wearing men's clothing. Parallel manifestations are observed in women who are charmed by the effeminate type of man, that is, beardless men with heavy deposits of fat, wide pelves, graceful necks and soft voices.

Certain other external evidences may suddenly betray a strong, though long repressed homosexual component, such as an unexpected interest in athletic contests in a person who has never previously shown interest in sport, or frequent visits to bathing establishments, or other places where men appear nude.

To the best known masks of homosexuality may be added that form of psychic impotence which is manifested by some men toward refined women. Such individuals, who fail with "the respectable women," are quite capable of performing coitus with prostitutes, because their libido is aroused by the imagination that such women have been possessed by other men. Stekel admits that in these cases of relative impotence there may naturally be many other determining factors, but claims that the above mechanism is never found wanting.

#### SEXUAL ABSTINENCE

In a little book ("*Sexuelle Neurasthenie*," by *Georg Flatau*, Berlin), which treats of sexual neurasthenia in the accepted light and in the conventional way, Flatau's most interesting chapter is that dealing with sexual abstinence in men and its effect upon health. Under absolute sexual abstinence he understands not only refraining from intercourse, but also avoidance of all the surrogates for coitus, such as auto and allo-masturbation and the various types of sexual excitement which form substitutes for the satisfaction of sexual cravings.

The author believes that if one adheres to this definition, there is practically no individual who can claim to have entirely avoided sexual activities of any kind, an opinion in which Lowenfeld, whose experience in sexology is so extensive, concurs. Lowenfeld has investigated twelve cases of alleged sexual forbearance, and in only three instances did the restraint approach abstinence in the sense quoted above.

Lowenfeld concludes that while under certain circumstances injury to the nervous system may result among men from abstinence, the complaints which ensue are not very severe and seldom produce the more serious type of acute disturbances, either nervous or psychic. The sexually normal man, who has not diminished his power of resistance against exciting impressions by sexual abuses, may, if he lead a hygienic life, endure abstinence without any considerable annoyance. He also speaks of "permanent abstinence," which indicates

that where no marriage is contracted, the abstinence may be prolonged throughout life.

*Forel* emphasizes that while opinions concerning abstinence are widely divergent, it is certain that the disadvantages have been ridiculously overdrawn and that restraint, even though accomplished at times at great cost, is feasible for both sexes.

*Eulenberg*, who formerly doubted if neurasthenic symptoms could arise from abstinence *per se*, has recently modified his attitude. He believes that under the ordinary social environment of the present time, sexual forbearance is advisable for healthy *young* persons of both sexes and its accomplishment entails little permanent injury to health. He considers the harm done to young people of psychopathic make-up to be merely a concomitant evil. In adult life, however, continued abstinence is an undesirable condition and its maintenance by the average person is a risk, which may lead to undeniable injury. In severe cases we find it producing anxiety-neuroses, sexual neurasthenia, hysteria, and even well developed psychoses.

A large number of notable authors are so convinced that such severe and permanent disturbances of mental and physical ease may be induced by abstinence, that they believe themselves justified in advising patients to indulge in intercourse. Thus *Porosz* records cases in which pollutions ceased only after normal indulgence; and *Gattel* found that anxiety-neuroses in a fair proportion of his cases were dependent upon abstinence.

*Marcuse*, in a valuable monograph ("Dangers of Sexual Abstinence to Health") insists that the impairment to health dependent upon abstinence is an established fact; but admits that this does not entirely speak against the justification of urging sexual abstinence. Both *Marcuse* and *Nystrom* present clinical histories which demonstrate the detrimental effects of abstinence.

*Flatau* himself believes that the advice to be given in the case of a physically healthy *young* man complaining of nervous symptoms which are dependent upon sexual abstinence but who, for financial reasons is unable to marry, is to prolong his forbearance, because, in his opinion the annoyance, the struggle, and the nervous symptoms are inconsequential as compared to the dangers of extra-conjugal sexual indulgence, or the equally noxious practice of masturbation. [Flatau apparently loses sight of the fact that in reality, as supported by his own citation from *Lowenfeld*, the problem practically resolves itself into the choice between intercourse or some surrogate, which is most frequently masturbation. It also is doubtful whether a young man who complains of nervous symptoms dependent upon masturbation, can be considered physically entirely healthy.—C. P. O.]

Even in neuropathic and sexually hyperesthetic individuals *Flatau* is not convinced of the curative or beneficial influence of indulgence,

and considers it advisable to support the principle of abstinence with all the therapeutic aids which tend to diminish hypersexuality.

Among the therapeutic suggestions are the time-worn and usually ineffectual drugs, baths, change of environment and hypnotic suggestion. The author pays little attention to the psycho-sexual life of childhood which the investigations of the psychoanalytic school have shown are, in cases of so-called sexual neurasthenia, often carried over into adult life; nor has he taken into account the unconscious influences which may dominate sexual activities, producing relative or constant psychic impotence, homosexual proclivities or phobias of the sexual type.—C. P. O.

#### THE EJACULATION OF SPERMATOZOA FROM A FEMALE URETHRA

M. Hirschfeld and E. Burchard, *Deut. Med. Woch.*, No. 52, 1911.)

From the numerous cases reported in which uncertainty as to sex existed, theoretically one might conceive the possibility of extreme cases of incongruity of the type of genitals and sexual glands so that a complete antithesis might exist between the apparent sex as indicated by the genitals and the actual glandular secretion. The authors, however, have been unable to find a previous instance in which seminal fluid containing living spermatozoa has been ejaculated from a female urethra in an individual whose external genitals are entirely feminine. Cases in which testicles have been discovered either at operation or at autopsy, on the other hand, have been recorded from time to time.

The patient, aged twenty, who had been christened and educated as a girl, was referred to the physicians by a lawyer whom the mother had consulted to ascertain the legal status of the individual, because "her" tastes, inclinations and actions had raised a doubt in the mind of the parents as to her sex. At the age of three she began to reveal a fondness for masculine interests, such as insisting on playing with soldiers and refusing to play with dolls, and later becoming an unusually pronounced type of "tom-boy," insisting on riding, shooting and climbing and finally on wearing her brother's clothing, disregarding entirely feminine frills.

She was subsequently educated at a girl's boarding school where, although she seemed quite indifferent to men, she would manifest a strong though transient liking for certain young women in the school (The American college girl "crush on another girl.") When the time arrived for her to be introduced into society she steadfastly refused. Notwithstanding her "crushes on" other girls, she never had sexual relations with either sex until at nineteen when she fell in love with a young woman who was her room-mate and during her sexual excitement she observed an ejaculation from the urethra.



The physical examination showed person of predominately feminine skeleton, with complete female genitals, and prominent mammary development. On the other hand she had never menstruated but instead, at the age of puberty, there had been a change of voice. The secretion from the urethra, which was obtained under circumstances which precluded fraud, showed living spermatozoa.

Under these circumstances the physicians were of the opinion that the patient belonged to the male sex because she is capable of impregnating, and have authorized an alteration of the birth certificate. The patient has decided to marry her friend, who is acquainted with the patient's anomaly and is willing to marry "her."

#### CONCERNING MASTURBATION

B. Dattner, in reviewing Drosnes' book which appeared in Russian and which treats masturbation from a psycho-analytic point of view, remarks (*Zentralblatt für Psycho-analyse*, June, 1912) that the latter has rightly taken up the cudgels against the "scorpions of cheap commercial medicine" who have done most to spread broadcast erroneous opinions concerning the dangers of this practice. He calls attention to the effect which these terrifying pictures have on the mental state of the masturbator, which is already so disturbed by the practice of the act without knowing its possible evil results. He compares the act with other bad habits of childhood, such as biting of the nails, which have their root in auto-erotic activities, and explains its persistence by the fact that the manipulation of the genitals is the most attractive and agreeable source of lust.

In regard to therapy he is circumspect in expressing his beliefs and while the psycho-therapeutic methods are especially recommended, he assigns an appropriate place to both the medicinal and mechanical agents for combating the habit.

#### THE REGISTRATION OF VENEREAL DISEASE

In commenting upon the recent action of the New York Board of Health in requiring the registration of venereal disease in persons treated in public institutions, Prince A. Morrow remarks (*Survey*, June 1, 1912): "No one can be optimistic enough to believe that the Health Department control of venereal diseases will entirely solve the problem. It is not a purely sanitary problem and can not be successfully worked out by sanitary methods alone. It is, in its larger aspects, a sociological problem, complicated in its causes with economic and social conditions. Many of these lie entirely without the pale of sanitary control. The communicative mode of these diseases cannot be touched by the strong hand of sanitary repression. It is a matter of personal control and can only be corrected by influences and agencies acting upon the intelligence and moral sense of the individual."

## REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman  
and Walter J. Heimann

### ZEITSCHRIFT FÜR UROLOGIE

(Trans. German Urological Congress)

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1. Notes on the Therapy of Prostatic Hypertrophy.

L. Casper asserts that of all the methods that have at various times been proposed for the treatment of the hypertrophy of the prostate, but two have been found sufficiently deserving to warrant serious consideration in every case. These are, regular catheterization, and the radical removal of the prostate gland. According to Casper, these two procedures are not to be regarded as competitive methods, each having its particular sphere of usefulness. Although catheterization, when aseptic, seems to meet the indication in a large number of cases, there are patients in whom prostatectomy only is clearly in order, either because the passage of a catheter is difficult, or because there are repeated hemorrhages, stone formation, or contracted bladder.

The author's results as judged from a series of 57 cases, point emphatically to the excellent functional condition, enjoyed by patients in whom the prostate has been removed. It is perhaps only the high mortality that will tend to repress the enthusiasm of surgeons.

It would seem that the figures recorded by various operators,—

indicating a mortality of from 4 to 20 per cent.—are widely divergent because of the acceptance of markedly different indications. If we restrict operative intervention to those cases which are really in need of surgical interference, the mortality will be apt to be rather high. Out of the 57 cases under consideration, death was ascribed to the following conditions: In 1 case, shock, shortly after the operation; in 3 cases, heart weakness; in 2 cases, sepsis; in 2, bleeding; and in 2, renal insufficiency. The author's conclusions may be summed up as follows:

1. The technic adopted did not differ materially from that of Freyer, the prostate being brought into reach by a finger in the rectum, or by traction with a clamp.

2. It was found best to pack the prostatic cavity with iodoform gauze, and also to drain the space of Retzius. If the bleeding cannot be controlled in this way, a procteuryster is introduced into, and made to fill up the rectum.

3. Cases of renal insufficiency, pyelonephritis, nephritis pye-nephrosis or atrophy of the kidney tissue, were found to offer a poor prognosis. The estimation of the renal function with phloridzin was demonstrated to be of value in the pre-operative stage.

4. In order to avoid infection, the cases with severe cystitis were treated with permanent irrigation after the operation.

5. The results after the use of tropo-cocain spinal anesthesia were bad. There were 4 cases of severe collapse and 1 death. The method was therefore entirely discarded and the combined scopolamine-morphine-chloroform or ether anesthesia employed.

6. It is often difficult to determine, before the operation, which of the patients suffering from sclerosis, will develop heart-weakness after the operation. The estimation of the blood-pressure is often of value.

## 2. Prostatectomy and Spontaneous Disruption of Vesical Calculi.

Berg gives the brief history of an interesting case of a patient 76 years of age, in whom suprapubic cystotomy was necessary, because of strangury, attacks of fever and hematuria. A large number of fragmented stones were found lying in a diverticulum and also behind the large prostate. Although it was found easy to remove the left lobe of the prostate, the middle and the right lobes came away with the greatest difficulty. The pathological diagnosis was papillary fibro-adenoma with infiltration of the muscle. The difficulty encountered in removing this tumor and the histological findings would both seem to speak for the author's contention that the tumor in his case had its origin in the prostate gland itself, and not in the peri-urethral gland, as suggested by Zuckerkandl and Tandler.

### 3. Observations on Prostatics with Diabetes.

Necker states that the frequent association of diabetes and prostatic hypertrophy had been pointed out in 1905 by Posner; and it has been shown in the last few years, that the excretion in diabetes seems to diminish in the course of a complicating nephritis. Neubauer records the interesting observation of a case in which a complicating pyelonephritis seemed to be responsible for the fact that glycosuria did not appear after 100 grams of dextrose had been administered, although the percentage of sugar in the blood was very large.

The author's experiences in cases where diabetes complicated hypertrophy of the prostate seemed to bear strong testimony to the correctness of the view held by Liefmann, Stern, and Neubauer, who believe that the excretion of sugar is largely dependent upon the integrity of renal parenchyma. Thus the author found that glycosuria diminished or totally disappears during the third stage of prostatic disease, when the kidneys become deranged in their function. These observations are of importance to the surgeon for the presence of a true diabetes mellitus may remain wholly unsuspected or masked if the kidneys be markedly diseased.

### 4. Experimental Studies of Renal Function.

Although it has been pointed out that a sort of reno-renal reflex exists between the kidneys, by virtue of which the function of one depends upon the other, Lichtenstern and Katz seem to lean to the opinion that this explanation of the involvement of the second kidney does not always hold. Indeed, in many cases, toxic absorption may be regarded as responsible for the impairment of the other organs. In a series of experiments on animals, in which one ureter was ligated with the production of hydronephrosis, it was distinctly proved that poisonous substances are produced which may be absorbed, appear in the blood serum, and there elicit the formation of specific precipitins.

### 5. Diabetes Experimentally Produced.

Mindful of the fact that certain derangements of the renal functions have been observed after laparotomy, and believing that all the phenomena heretofore recorded, such as the excretion of albumin, urobilinuria, etc., cannot be attributed to the anesthesia, Lichtenstern and Katz sought to find an explanation in a series of animal experiments. It was found that the excretion of urine could be influenced by manipulating the peritoneal contents. Thus pulling on the omentum or gut, or the application of hot compresses, led very soon to a marked polyuria. As for the presence of abnormal substances in the urine the findings of Kreidl and Winkler, who observed the appearance of dextrose upon incising the abdomen, were repeatedly corroborated. The mere opening of the peritoneal cavity seems to in-

duce glycosuria in animals, the amount of excreted sugar varying from .8 to 8½ per cent. Laparotomy performed on apes, however, is not followed by the appearance of sugar in the urine.

#### 6. Are there Benign Tumors of the Prostate?

Referring to the mooted question as to the pathology of hypertrophy of the prostate, A. Hock cites the case which favors the view that true tumors of the prostatic gland may exist, and that all adenomas do not necessarily belong to the type characteristic of old age. The tumor in question was a papillary cyst-adenoma, and was removed from a man 44 years of age, who presumably had harbored it for many years.

#### 7. Chronic Constipation and the Urinary Organs.

Paul Asch describes three groups of cases in which urinary symptoms are attributable to chronic constipation. In the first group including men between the ages of 40 and 60, the symptoms are frequent urination, dribbling and even retention of urine. In the second variety, the frequency and urgency of micturition seem to be the predominating symptoms. The third group differs from the former two in the pathological conditions that are held responsible for the symptoms exist in the urinary organs.

Asch believes that the hyperemia of the uropoietic system induced by habitual constipation leads to swelling of the mucosa of the ureter and partial retention of the urine.

The presence of the bacillus coli, which is not infrequently found in the urine of these cases, must also be regarded as an etiologic factor in the production of the symptoms.

#### 8. Thiosinamin in the Treatment of Chronic Inflammatory Induration of the Prostate.

In order to influence indurative conditions of the prostate due to chronic inflammatory lesions of gonorrheal origin, Karl Ullmann has employed injections of thiosinamin soluble in water, together with massage. The injections are given on every other or third day, a series being composed of 10 doses, each followed by prostatic massage. Sometimes 20 or 30 such injections are necessary to produce an effect. The best results are obtained if the massage is done 15 minutes or one-half hour after the injection of the solution, in order that the mechanical therapy may be carried out at a time when the medicament is circulating through the prostate. The results obtained in a series of 85 cases are considered by the author to have been very gratifying, and this combined injection and massage therapy is therefore to be recommended in all severe indurative forms of chronic prostatitis.

## 9. Concerning Epididymitis Erotica S. Antiperistaltica.

According to Löw and M. Oppenheim, the sudden appearance of a gonorrheal epididymitis is to be attributed to a reflex that originates in the verumontanum. From this point, it can be shown experimentally that thermal, electric and mechanical stimuli are able to elicit antiperistaltic contractions in the seminal vesicles and the *vas deferens*; and so by analogy, we can assume that purulent secretion can be forced backward into the epididymis. By means of electrical irritation of the nervous hypogastricus in rabbits, virulent streptococci, that had been introduced into the urethra, were seen to pass into the epididymitis where a streptococcus infection was produced. In man, a similar reflex may be brought into action, by any of the following: Excessive treatment of the posterior urethra, prostatic massage, pollutions, sexual excitement, and severe bodily exertion.

In many respects, gonorrheal epididymitis is clinically stimulated by that acute swelling of the epididymis which is so frequently seen to occur in engaged men, after severe sexual excitement without ejaculation. Just as in the gonorrheal type of inflammation, the testicle itself usually remains free, whereas the epididymis may attain considerable dimensions.

In reviewing his records of 1908, the author finds 10 cases of this antiperistaltic variety of epididymitis out of a total of 500 cases. In none of these cases could gonorrhea be regarded as the cause; and unsatisfied severe sexual excitement, with volitional suppression of ejaculation preceded the attack in 9 instances. Although some authors hold circulatory disturbances responsible for the lesion, the author inclines to the view that antiperistaltic action of the *vas deferens* and seminal vesicles must be held accountable in his series.

## 10. Injections of Electrargol in Acute Epididymitis.

Having employed the method of injecting the epididymis with electrargol as suggested by Asch (*Zeitschrift für Urologie*, Vol. 5, No 2) Kyrle is convinced that in his series of 17 patients the results were remarkably good. All the cases but one presented an acute epididymitis of but short duration and received 1 to 2 c.c. of electrargol through a very fine needle into the affected portion of the epididymis.

The method possesses the following advantages: The pain disappears much more rapidly than after any other method of treatment, and after 2 to 4 days have elapsed the affected part loses all local tenderness, and even the inflammatory manifestations rapidly disappear. Although there can be little doubt as to the beneficial effects produced by the injection, the author is still doubtful as to what rôle simple puncture (as recommended by Neisser) plays in the production of a good result, and whether or not other silver preparations may not accomplish the same thing.

## 11. The Early Treatment of Gonorrhea.

Quoting the good results of a large number of authors who make a practice of employing the abortive treatment for gonorrhea whenever it is applicable, Ernest Spitzer deplors the fact that ordinarily the duration of the disease is 2 months or more. He therefore recommends the employment of the silver salt at the earliest possible moment. The best solutions for injection are the following: protargol, 3 to 5 per cent., ichtargan,  $\frac{1}{4}$  to  $\frac{1}{2}$  per cent., silver nitrate,  $\frac{1}{4}$  to  $\frac{1}{2}$  per cent., alypin being used to allay the pain. Six, twelve or twenty-four hours later, according to the reaction, the injection is repeated, and usually after the first injection, or on the second or third day, all the gonococci have disappeared. Beginning with the second to the fifth day, weaker solutions are in order.

## 12. Endoscopy of the Male Urethra.

Glingar emphasizes the importance of employing the irrigation posterior-urethroscopy in the diagnosis and treatment of ulcerative processes in the urethra, papillomas, foreign bodies, folds, diverticula and strictures. The author believes that those who have mastered the technique will find it indispensable.

## 13. Staphylococcus Infection of the Male Urinary Organ.

R. Picker states that this process presents itself in the following form: 1st, where there is a sub-acute discharge with intracellular diplococci that can be differentiated from these organisms only by the Gram stain; 2nd, cases with phosphaturia with practically no purulent secretion; 3rd, cases with vesical disturbances and pyuria; 4th, a form in which the bladder symptoms are marked, there being pronounced urgency of micturition with terminal evacuation of chalky and mucous masses. The last variety may also be mistaken for alimentary or psychic phosphaturia. Whereas the true phosphaturias are difficult or impossible to cure, the last mentioned group often yields to the massage of the prostate and vesicles in which the infectious process may have taken hold.

## 14. Cases of Gonorrhea Healed Without Antiseptic.

Observations on 5 cases have convinced R. Picker that spontaneous healing may occur in even severe cases of gonorrhea without the employment of any antiseptic solutions.

## 15. A Method of Diagnosticating Catarrhal Diseases of the Prostate.

Employing potassium permanganate as an indicator, Carl Alexander finds that even small amounts of prostatic mucus will decolorize the solution, give it a rosy opalescent tint or a dirty brownish color. The technic is the following: The patient having voided into several glasses, in the usual way, a solution of potassium permanganate (1 to 10,000) with a small amount of boric acid added, is injected into

the bladder by means of a Janet syringe. The patient then empties his bladder into two glasses, the prostate is then massaged, and a third or possibly a fourth portion passed. The presence of even the faintest trace of prostatic mucus will manifest itself in the color change of the permanganate of potash solution.

16. Endomassage of the Urethra.

By means of a combined vibration and irrigation therapy Dreuw claims to have obtained excellent results in the treatment of gonorrheal affections. For this purpose, either straight or curved perforated sound as illustrated in Figs. 1, 2, 3, is used. Weak solutions of silver nitrate, lead acetate, or potassium permanganate are allowed to flow through the canulae in such a manner that very fine and forcible jets are projected against the mucous membrane, the re-

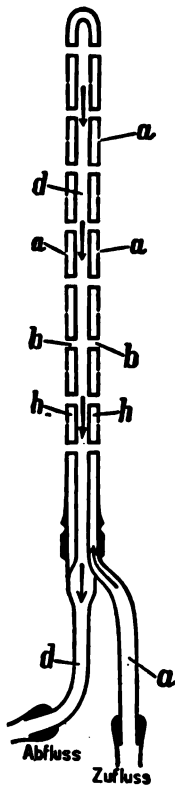


Fig. 1.



Fig. 2.

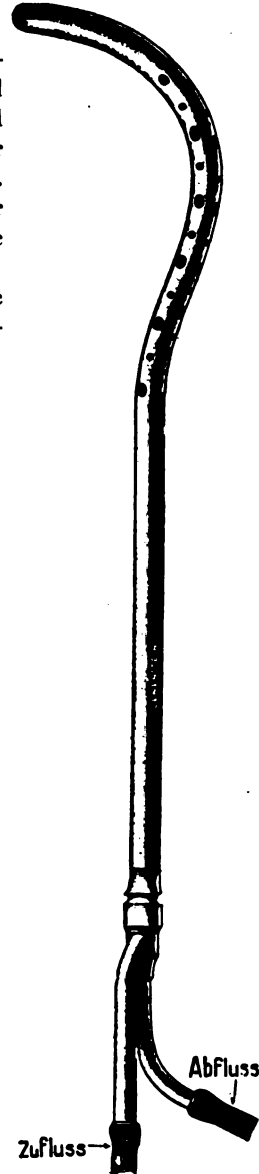


Fig. 3.



turn flow taking place through larger openings that empty into a separate outlet. The circulating fluid irrigates not only the urethra but produces vibratory massage. The author claims the following advantages for his method: 1st, because the fluid strikes the mucous membrane perpendicularly, it is apt to penetrate the lacunae and Littre's glands; 2nd, the urethral glands are probably also expressed by the action of the vibratory massage; 3rd, the fine division of the irrigating stream, and the force of its impact probably favors resorption of the fluid; 4th, by varying the temperature of the fluid, it is possible to cause marked hyperemia of the mucous membrane; 5th, both the anterior and posterior urethra can be treated by the use of the proper catheter; 6th, besides its other virtues, the method is instrumental in producing dilatation of the canal.

### MISCELLANEOUS ABSTRACTS

#### Injection of Paraffin for Incontinence of Urine Following Trauma to the Female Urethra.

E. Eising (*Med. Record*, April 27, 1912), has found paraffin injections around the urethra to be of value in controlling urinary incontinence and cites two cases which were greatly improved by this treatment.

#### Primary Sarcoma of the Male Urethra.

E. G. Mark (*Annals of Surgery*, Vol. LV, No. 3, March, 1912). When first seen by Mark, the patient complained of dysuria and diminution in the urinary stream. Examination revealed a fairly hard elongated mass, palpable from just posterior to the glans back through the scrotal urethra. A slight sero-sanguinous discharge presented at the meatus. No. 10 F bougie à boule was passed with difficulty. A No. 24 F urethrosopic tube met obstruction just posterior to the corona. Under air dilatation, very pale polypoid masses, irregular in outline, were observed, springing from the entire urethral circumference. Curettage of the growth allowed the passage of a cystoscope. The bladder showed a well marked cystitis but no evidence of a new growth. Microscopical sections of the currettings revealed fibrosarcoma.

The patient refused radical treatment.

#### Concerning Prostatic Hypertrophy.

M. Lissauer (*Med. Klinik*, March 10, 1912). Prostatic hypertrophy is found in between 34 and 59 per cent. of all men over 60 years of age; only half of this number, however, give symptoms of the condition during life. Two general types of hypertrophy are recognized, total and partial. Pathologically three forms are generally described, myomatous hypertrophy, fibromyomatous, and adeno-

matous. According to the author the median lobe is less frequently involved in the hypertrophy than the lateral lobes. As regards the causative factor in prostatic enlargement, two theories stand out prominently; the first regarding the hypertrophy as a true new growth, the second as the end result of a chronic inflammatory process. In a careful histological study of 37 cases of hypertrophied prostate, the author found that the enlargement consisted mainly of an increase in glandular elements and that although myomatous and fibromyomatous nodules were often seen in the lateral lobes, they were not of sufficient size to influence the hypertrophy in any way. In a large proportion of the specimens examined there were no evidences of inflammatory processes; compression of the ducts or glandular tissue by inflammatory foci was not seen. Cystic dilatation of the gland was often seen, but was found to bear no relation to the size of the prostate, for often in small prostates very large and numerous dilatations were encountered. The median lobe hypertrophies were composed almost entirely of glandular elements, showing moderate cystic dilatation. As a result of his studies, Lissauer regards the hypertrophy as a tumor formation of an adenomatous or fibro-adenomatous type. In favor of this view is the fact that recurrences after prostatectomy, though rare, are occasionally seen. Against the acceptance of the inflammatory theory which advances gonorrhea as the chief predisposing factor, are the following points: many patients who have never had a gonorrhea, develop hypertrophied prostate; the symptomatology differs considerably, for in gonorrheal prostatitis urinary retention with its consequences is very infrequent, and thirdly, whereas gonorrhea is usually developed early in life, the symptoms of prostatic enlargement rarely appear before 50 years of age. The author calls attention to the fact that microscopically it is often impossible to differentiate between benign hypertrophy and carcinoma.

Wilms and Posner have recently called attention to the well known relationship existing between the testicles and prostate, and advance the theory that hypertrophy is due to the action of a testicular hormone. They report an excellent result after raying the testicles in an old prostatic with complete retention. Experimentally it has been shown in animals that castration generally produces an atrophy of the prostate; these results, however, were not fulfilled in the human subject, and the various sexual operations on the testicle and vas deferens have consequently been abandoned.

## SOCIETY PROCEEDINGS

### THE NEW YORK ACADEMY OF MEDICINE. SECTION ON GENITO-URINARY SURGERY.

May 15, 1912.

#### Complete Removal of Bladder for Carcinoma.

*Dr. H. D. Furniss* presented a case of a woman 50 years of age, who had a carcinomatous tumor on the right side of the bladder, just outside of the urethra, the trigone being infiltrated. Because of severe urinary symptoms, tenesmus, ammoniacal urine and loss of weight, it was decided to perform a radical operation after preliminary isolation of the ureters. Accordingly, on April 12, 1912, a bilateral lumbar ureterostomy was done, a ureteral catheter being tied into either ureter. On the 27th of April, a median abdominal incision was made, both internal iliac arteries ligated, the peritoneum divided over the posterior surface of the bladder as low as the anterior cul-de-sac, and the bladder was peeled out with very little hemorrhage. Except for extensive sloughing of the fascia of the abdominal wall, and an infection of the left kidney, which now seems to be under control, the patient has done very well.

#### Two Cases of Chronic Cystitis.

*Dr. J. E. Zipser* presented two cases which form the subject of a paper that will appear in full in an early issue of the JOURNAL.

#### Dilatation, Irrigation and Medication of the Prostatic Urethra with a New Sound.

*Dr. A. L. Soresi* read this paper which will be published in full in the JOURNAL.

#### Notes on Innocent Colon Bacilli in Urines.

*Dr. Anthony Bassler* reported that he had examined 191 fresh urines for the presence of colon bacilli. The colon bacillus was found 8 times in large numbers and in smaller amounts 10 times, making a total of some 9 per cent. In none of the cases were there any genito-urinary symptoms, although in most of them, intestinal putrefaction was marked. Dr. Bassler believes that there are normal individuals whose bladders are incubators, and whose urine is a medium for the proliferation of the bacterium coli. Among the constituents of normal urine, there are sufficient amounts of carbon, nitrogen, hydrogen and salt to afford an adequate pabulum for the growth of bacteria. There seem to be healthy individuals whose daily urine is almost as replete with colon bacilli as their feces.

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## CONCLUSIONS DRAWN FROM ONE HUNDRED PROSTATECTOMIES

By OLIVER C. SMITH, M. D., Hartford, Conn.

Surgeon at Hartford Hospital.

**I**N presenting this series of one hundred prostatectomies which have been performed during the years from 1902 to 1912, I shall not hope to offer original methods of technique, but shall endeavor to make plain the causes of our failures and fatalities, and to state methods which I believe have brought greater safety and better results.

In relation to the etiology of the senile prostate, I conclude from the histories in this series that Neisserian infection and chronic urethritis are factors of comparatively rare incidence, rather than predominating, as earlier literature would lead us to believe. As to spheres of life and occupational incidence, I feel that no definite conclusions can be drawn. Our patients have come, as a rule, from the upper walks of life, have included a number of professional men of comparatively sedentary habits, and a number of farmers, a few mechanics, but no laborers in the usual acceptance of the term. This may be largely due to the fact that this class do not live to the age incidence of prostatic disease. The pathology of the prostates removed shows at least 16% to have been malignant, this series including one sarcoma, and 2% to have been tubercular. The balance, or 82% have been benign growths, the increase in glandular, muscular, and fibrous tissue varying greatly in different specimens. A few of the earlier cases, which looked benign, escaped critical microscopic examination. Undoubtedly more thorough pathological work would have given a somewhat higher percentage of malignancies.

This series of cases may be conveniently divided into four

sub-series of twenty-five each, these divisions marking changes in technique and advances in preliminary preparations and post-operative treatment, and the wiser selection of operative risks. The first twenty-five cases were performed through a median perineal incision, the prostate being drawn down by the rubber tractor of Parker Sims. Practically all the cases were in the third stage of the disease, that is, either suffering from complete obstruction and sepsis, or from the terminal conditions of hemorrhage, urinary extravasation, pyelitis, cardio-vascular changes, emaciation, and failing health. No one at that early time considered an operation except as a last resort, and the patient who was willing to be operated upon had to be accommodated from stress of circumstances, regardless of the operative hazard. Nearly all were tried upon catheter life, where such was possible. For this series of twenty-five, the fatalities attributable to operation were four, three of the four deaths being due to post-operative pneumonia, and one to intestinal infection. The operations were frequently performed in emergency at the homes of the patients, in some instances in remote regions. The rectum was injured twice during this series, an accident which has not occurred during the following seventy-five cases. Stones were left in the bladder or formed soon after operation in two cases. Epididymitis occurred in 15%. Of these twenty-five cases operated upon between eight and ten years ago, 50% are still living, a number of them over eighty years of age.

The second series of twenty-five were performed by the perineal route, by the dissecting method of Young: the inverted V incision, traction upon the bladder neck by the metal tractor, division of the central tendon of the perineum and rectourethralis muscle, and exposure to view of the prostate during enucleation. The mortality attributable to operation for this series was six, one death being from pneumonia, one from cerebral effusion, one from cardiac failure, one from septicemia from urinary infiltration, one from shock and hemorrhage and one from anuria. To the after treatment was added forced water drinking, the earlier removal of the drainage tube, continuous irrigations for a varying period in the cases of badly infected bladders, and the patients out of bed at an earlier date.

The third series of twenty-five were performed by the perineal route *without* the use of a bladder tractor, and by the median perineal incision and digital enucleation with the ungloved finger.

The prostate was depressed by hand pressure above the pubis, and it rarely happened that the enucleation could not be successfully made. The operation is quicker, there is less dissecting and less trauma from the use of retractors. But one death occurred, and that was due to a remote cause. Cystoscopy was performed on a number of cases to determine the condition of the bladder mucosa, the presence or absence of stones and the appearance of the intravesical portion of the prostate. Cryoscopy was employed a few times to determine renal efficiency.

During this series we adopted a more thorough technique in hemostasis. The vesical neck was drawn down with forceps and firm tamponing with gauze strips out of hot glutol solution was employed. These were removed and others introduced, each being allowed to remain a few moments. When a dry field was procured iodoform gauze packing was introduced around the drainage tube and removed on the third or fourth day. Two hemorrhages followed removal of gauze. After this experience we saturated the gauze packing with oil introduced through the urethra and into the wound a day before its removal. In three instances the bladder was drained by catheter through the penile urethra, the vesical neck and wound cavity being tightly packed. One death occurred in this series, caused by pulmonary embolism, one week following operation.

The more frequent use of the cystoscope, revealing the intravesical location of the prostatic growth, led us to employ the suprapubic route in four of the third series and sixteen of the last series. One realizes, when examining the bladder through this incision, to what an extent the meatus internus is elevated and the base of the bladder heaped up, cone-shaped, around the enlarged prostate, in some instances nearly to the anterior wall, and the amount of traction force that is necessary to pull the field into a perineal incision. Twice in our work the metal tractor was drawn through the vesical neck. In these twenty suprapubic operations, no death referable to the operation has occurred. The technique of the suprapubic operation has consisted in Trendelenburg's position, a 6 to 8 cm. incision above the pubis, avoiding the peritoneum, opening the bladder rather high upon the anterior wall. Retraction of the bladder incision has been avoided unless the exploring finger discovered conditions which required vision. Three times papillomata have been dealt with, and once a fibroid growth of the anterior bladder wall was removed. In four of these suprapubic operations stones have been found and removed, some

of which might have been overlooked by the perineal route. In the earlier cases I incised the bladder mucosa; later the prostatic removal was accomplished by dilatation of the internal meatus and enucleation from within the urethra, commencing at the base of each lobe. An assistant's finger in the rectum pressed the prostate upward and served as a guide. In no instance has the rectum been injured nor has any serious hemorrhage occurred either at the time or following the operation. Temporary packing with hot glutol gauze, as in the perineal route, has been employed. Closure has been accomplished by more or less inversion of the bladder wall around the drainage tube, the suture of catgut penetrating all coats but the mucosa. The abdominal wall is closed by tier sutures with careful obliteration of dead spaces. Siphonage has been employed a few times but not as routine, for the leakage around the tube is insignificant. Drainage is usually satisfactory, although not favored by gravity as in the perineal incision. Patients are bolstered up on the second day, and if strength permits are out of bed by the end of the first week. If clots have ceased to form and the urine is fairly clear, the tube is withdrawn at this time. Complete closure of the bladder wall, if infection is mild and hemorrhage slight, with urethral catheter drainage has been employed once, and in exceptional cases may be the method of choice in future work.

*Anesthesia:* Ether by the closed method was used in our first series; later, ether by the drop method, which we still employ. Later, in bad risks, nitrous oxide-oxygen by the Teter apparatus, and at present gas-oxygen-ether, by the apparatus of Gatch, which we have now used for two years with great satisfaction. In a few cases of great hazard local cocaine or alypin and adrenal infiltration, supplemented by gas-oxygen or ether has been used. Spinal anesthesia was employed twice.

The immediate and remote results have steadily improved during the last fifty cases, but two fatalities having occurred, giving a mortality of 4%, one from cardiac and one from pulmonary embolism. None have died from shock or hemorrhage. Considering the 16 malignant cases separately, two deaths occurred as an immediate result of operation, 16 2-3%. The remote results have been as good as late operations for cancer of other internal organs, unless it is growths of the large intestine. The fact that such a large percentage of prostatic growths are now known to be malignant is a strong inducement for earlier operation. Four

of this series of 16 are living and at work, at periods varying from 3 to 4 years.

The remote causes of fatalities, pneumonia, nephritis, renal infection, pulmonary and cardiac embolism, are more difficult to guard against and must necessarily, from the general status of the patients, the nature of the lesion and the operation, which leaves open vascular channels, remain a menace to all radical prostatic operations. The measures that make for greater safety are: 1st, a critical examination of the patient including the cardiovascular, respiratory and nervous systems; blood pressure observations, ascertaining the hemoglobin, the determination of the renal function, preferably by the phenolsulphonephthalein test of Geraghty and Rowntree, and the careful elimination of malignant or other serious conditions which make even a prostatic obstruction of secondary importance; 2nd, insisting upon a period of rest and treatment for these various conditions until the contraindications are less pronounced; 3rd, in the severe emergencies of sepsis and obstruction, conservative cystostomy either by the perineal or suprapubic route, preferably the former, and biding the time when a radical operation may be more safely undertaken, as emphasized by Chetwood and Willy Meyer; 4th, by selecting the safest and best methods of anesthesia, by administering the smallest amount possible to secure results and that by a trained and skilled anesthetist; 5th, by performing these operations and providing after-care in a well equipped hospital, where every contingency is provided for, and preferably where one is accustomed to work, assisted by associates, nurses, and orderlies trained in this special line of surgery—to do otherwise is unfair to operator and patient, and must greatly enhance the immediate and remote dangers; 6th, to state definite details of after-care, to provide prompt and efficient treatment for hemorrhage, shock, anuria, pain and obstruction to drainage. The lack of these precautions and methods has been responsible for most of our immediate fatalities.

In comparing the indications for and the advantages of the upper or lower route, we find that a low-lying prostate, in a fleshy subject, had better be removed by the former, and that a high prostate in a thin subject should be removed by the latter. Rectal, bimanual and cystoscopic examination will determine the situation of the prostatic growth. The advantages of the perineal route are the superior drainage, the avoidance of infection of the



Serial Number	Occupation	Age	Duration of Symptoms, yrs.	Stage	Complications	Date of operation	Anesthesia	Method or Route	RESULTS			Cause of Death	Nature of Tissue	Remarks
									Immediate	Final	Lapse			
1	Farmer	56	1½	3	Sepsis-sclerosis	6-02	Ether (closed method)	Perineal	living	After three years still some incontinence	10 yrs.	Pneumonia	Benign	Traumatic
2	Farmer	78	2	3	Sepsis-sclerosis	8-02	Local	Perineal	died	1 week			Not determ'd	Extremely bad surgical risk
3	Farmer	61	1½	2	48 hours retention	9-02	Ether (closed method)	Perineal	living	Reoper'n in 2 y., small obstruct'g lobe-recov'y	9½ yrs.		Benign	
4	Mechanic	60	12	2	Lacerated urethra, hemorrhage, alcoholic	10-02	Ether (closed method)	Perineal	living		2 yrs.	Pneumonia	Not deter-mined	
5	Mechanic	66	7	3	Lardo-vascular sclerosis	10-02	Ether (closed method)	Perineal	living		2 yrs.	Apoplexy	Probably benign	
6	Farmer	63	2	2	Complete bladder obstruction	12-02	Ether (closed method)	Perineal	living		9 yrs.		Benign	
7	Clerical work	60	2½	3	Arterial sclerosis	3-03	Ether (closed method)	Perineal	living		2 mos.	Septicemia	Not deter-mined	
8	Farmer	70	1	2	Intestinal obstruction	3-03	Ether (closed method)	Perineal	died	5 days		Intestinal infection	Not deter'm'd	
9	Statesman	73	4	3	Complete obstruction; chronic gastric ulcer	6-03	Ether (closed method)	Perineal	living	perfect control	9 yrs.		Benign	Bladder function still perfect at 84
10	Merchant	73	1	3	Hemorrhage-sepsis	7-03			living				Carcinoma	Recurrence and metastasis
11	Mechanic	63	1½	3	Cachetic	7-03	Ether (closed method)	Perineal	living		1 yr.		Carcinoma	Lung metastasis
12		63	2	3	Sclerosis	7-03	Ether (closed method)	Perineal	living		3 yrs.		Carcinoma	Recto-urethral fistula
13	Manufacturer	72	2	2	Morphine habit; arterial and vascular sclerosis	8-03			living		3 yrs.		Carcinoma	Pelvic metastasis
14		77	9	3	Cardiac asthma	8-03	Ether (closed method)	Perineal	living		4 yrs.		Adeno-carc'a	
15	Physician	74	2	3	Uræmic attacks; hourly catheterization	10-03	Ether (closed method)	Perineal	living	some incontinence	8½ yrs.		Benign	Active, excellent health at 82
16	Architect	74	6	3	Septic; confined to bed; arterial sclerosis	7-04	Ether (closed method)	Perineal	living	slight incontinence	8 yrs.		Benign	Well, and active at 82
17	Carpenter	73	1	3	Bronchitis; arterial sclerosis	9-04	Ether (closed method)	Perineal	living	perfect control	7½ yrs.		Benign	Well, and active at 81
18		72	1½	3	Septic	9-04	Ether (closed method)	Perineal	died	24 hours		Shock-hemorrhage	Adeno-carc'a	
19	Hotel Proprietor	75	3	3	Arterial sclerosis; feeble and emaciated	10-04	Ether (closed method)	Perineal	living		48 hrs.	Anuria and shock	Benign	
20	Postmaster	73	3	3	Cardio-vascular sclerosis	3-05	Ether (closed method)	Perineal	living	perfect control	7 yrs.		Benign	Living at 68; perfect control
21	Clerk	61	2	3	Bladder aspirated; suffering from anuria	3-05	Gas—ether	Perineal	living	perfect control	7 yrs.		Benign	
22	Farmer	68	2	3	Septic-alcoholic	3-05	Ether (closed method)	Perineal	died	10 days		Lobar pneumonia	Benign	Perfect control until death
23	Builder	77	2	3	Septic-delirious	3-05	Ether (closed method)	Perineal	living		5 yrs.	Apoplexy	Benign	Carcinoma of intestines
24	Merchant	77	2	2	Cardio-vascular sclerosis	4-05	Ether (closed method)	Perineal	living		2 mos.	Angina pectoris	Adeno-carc'a	3 y. after op. required urethra
25	Clerical work	75	4	3	Anuria; complete obstruction; cardiac disease	1-06	Ether (closed method)	Perineal	living	perfect control	6 yrs.		Benign	Exfoliation; well & active at 8
26	Farmer	74	1	3	Extravasation	1-06	Ether (closed method)	Perineal	living	3 days		Septicemia from urinary infiltration	Benign	Emergency—should have been done in 2 stages
27	Mechanic	64	2	3	Septic—very bad	3-06	Ether (closed method)	Perineal	living	4 days		Pneumonia	Benign	
28	Painter	59	2	3	Lacerated urethra and aspiration	3-06	Ether (closed method)	Perineal	living		4 yrs.	Carcinomatosis	Carcinoma	
29	Mail Carrier	55	8	3	Alcoholic	5-06	Gas—ether	Perineal	living	perfect control	6 yrs.		Benign	

30 Farmer	57 6	2	Arterial sclerosis; complete obstruction	5-06 Ether (closed method)	Perineal	living	perfect control	6 yrs.	Benign	Marked improvement in health & weight; still well & active at 78 yrs.
31 Lawyer	72 1	3	Pulmonary tuberculosis	5-06 Ether (drop method)	Perineal	living	slight incontinence	6 yrs.	Benign	Was restored to working condition for 3 yrs.
32 Animal tamer	63 1/2	3	Alcoholic; melancholic; complete obstruction with hemorrhage	6-06 Ether (drop method)	Perineal	lived	perfect control	3 yrs.	Benign	Emergency—should have been done in 3 stages
33 Statesman	64 5	3	Extravasation; septic; pyelitic	9-06 Ether (drop method)	Perineal	died	3 days	4 wks.	Benign	Death not chargeable to op't'n
34 Engineer	48 3	3	Cachectic	10-06 Ether (drop method)	Perineal	lived	perfect control	3 days	Benign	Metastasis
35 ..... 72 2	72 2	3	Urethral stricture; feeble invalid; pyelitis left kidney	12-06 Ether (drop method)	Perineal	died	perfect control	5 1/2 yrs.	Benign	Living, working daily
36 Farmer	72 3	3	Complete obstruction; hemorrhage; sepsis	12-06 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
37 Mechanic	57 3	3	Complete obstruction; failing vitality; arterial sclerosis	1-07 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
38 Farmer	62 1	3	Arterial sclerosis; failing health	1-07 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
39 Florist	76 5	3	Arterial sclerosis; failing health	1-07 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
40 Veterinary	69 3	3	Cardio-pulmonary	2-07 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
41 Farmer	62 2	3	Diabetic; complete obstruction	4-07 Ether (drop method)	Perineal	lived	perfect control	3 mos.	Benign	
42 Farmer	71 4	3	Arterial sclerosis; sepsis	6-07 Ether (drop method)	Perineal	lived	perfect control	3 wks.	Benign	
43 Druggist	69 12	3	Arterial sclerosis; constant residual	6-07 Ether (drop method)	Perineal	lived	perfect control	3 wks.	Benign	
44 Accountant	72 2	3	Arterial sclerosis; constant residual	7-07 Ether (drop method)	Perineal	lived	perfect control	5 yrs.	Benign	
45 Lawyer	53 2	3	Tubercles; arterial sclerosis	10-07 Ether (drop method)	Perineal	died	1 wk.	.....	Benign	
46 Foreman	57 2	3	Alcoholic; cardio-vascular	11-07 Ether (drop method)	Perineal	died	15 hrs.	.....	Benign	
47 Conductor	72 2	3	Complete obstruction; hemorrhage	11-07 Ether (drop method)	Perineal	living	perfect control	4 1/2 yrs.	Benign	
48 Farmer	68 2	3	Stricture; obstruction, hemorrhage	12-07 Ether (drop method)	Perineal	living	perfect control	4 1/2 yrs.	Benign	
49 Clerk	62 14	3	Chronic nephritis; mildly septic	12-07 Ether (drop method)	Perineal	living	perfect control	4 1/2 yrs.	Benign	
50 Jobber	63 3	3	Arterial sclerosis, sepsis, retention	1-08 Ether (drop method)	Perineal	lived	perfect control	6 mos.	Benign	
51 Dep. Sheriff	72 3	3	Arterial sclerosis, sepsis, retention	2-08 Ether (drop method)	Perineal	lived	perfect control	3 mos.	Benign	
52 Mechanic	66 1	3	Arterial sclerosis, sepsis, retention	2-08 Ether (drop method)	Perineal	lived	perfect control	3 mos.	Benign	
53 Broker	76 1 1/2	3	Commencing tabes	2-08 Ether (drop method)	Perineal	lived	perfect control	4 yrs.	Benign	
54 Merchant	77 2	3	Arterial sclerosis; pyelitis; complete obstruction	2-08 Ether (drop method)	Perineal	lived	perfect control	3 yrs.	Benign	
55 Pensioner	71 2	3	Arterial sclerosis; feeble and broken	3-08 Ether (drop method)	Perineal	living	perfect control	4 yrs.	Benign	
56 Mechanic	72 2	3	Complete obstruction, highly septic, aspiration	3-08 Ether (drop method)	Perineal	living	perfect control	4 yrs.	Benign	
57 Farmer	66 3	3	Arterial sclerosis	3-08 Ether (drop method)	Perineal	died	1 wk.	.....	Benign	
58 ..... 66 6	66 6	3	Septic	4-08 Ether (drop method)	Perineal	lived	perfect control	4 wks.	Benign	
59 Farmer	64 7	3	Cachectic	5-08 Ether (drop method)	Perineal	lived	perfect control	4 yrs.	Benign	
60 Farmer	67 7	3	Post-Neisserian	7-08 Ether (drop method)	Perineal	living	perfect control	3 yrs.	Benign	
61 Clerk	71 36 2	3	Septic	7-08 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
62 Merchant	68 1	3	Septic	9-08 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
63 Farmer	67 5	3	Septic	10-08 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
64 Stable k'p'r	57 8	3	Severe cystitis	12-08 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
65 Grinder	59 6	3	Severe cystitis	12-08 Ether (drop method)	Perineal	living	perfect control	5 1/2 yrs.	Benign	
66 ..... 76 5	76 5	3	Septic; obstruction	3-09 Ether (drop method)	Perineal	living	perfect control	5 yrs.	Benign	
67 Weaver	62 2	3	Septic; obstruction	3-09 Ether (drop method)	Perineal	living	perfect control	5 yrs.	Benign	

Serial Number	Occupation	Age	Symptoms, yrs.	Stage	Complications	Date of operation	Anesthesia	Method or Route	RESULT			Cause of Death	Nature of Tissue	Remarks
									Immediate	Final	Lapse			
66	Newsdealer	70	2	3	Septic; bedridden	3-09	Ether (drop method)	Perineal	lived	.....	4 mos.	Carcinomatosis	Carcinoma	Relieved by drainage
68	Merchant	80	3	3	Arterio-sclerosis; systolic heart murmurs; septic bladder; sloughing prostate	7-09	Gas oxygen	Perineal	living	perfect control with frequency	3 yrs.	.....	Benign	Small bladder capacity; rest good for age and condition
70	Physician	67	3	2	Diverticulum of bladder	9-09	Ether (drop method)	Suprapubic	living	perfect control	2 1/2 yrs.	.....	Benign	Diverticulum required prolonged irrigation
71	Laborer	73	....	3	Complete obstruction	9-09	Chloroform	Perineal	living	perfect control	2 1/2 yrs.	.....	Benign	Good condition
72	Farmer	66	40	3	Artemia fr. hemorrhage; septic bladder	11-09	Gas oxygen	Perineal	living	perfect control	2 1/2 yrs.	.....	Benign	2 stage operation, cystostomy and prostatectomy
73	Mechanic	63	3	3	Urethral laceration; vesical hemorrhage	11-09	Ether (drop method)	Perineal	living	perfect control	2 1/2 yrs.	.....	Benign	Sexual capacity preserved
74	Farmer	53	3	3	Retention, intravesical hemorrhage	2-10	Ether (drop method)	Perineal	living	perfect control	2 yrs.	.....	Benign	2 stage operation, cystostomy and prostatectomy
75	Farmer	72	5	3	.....	2-10	1% eucaïne-local Gas oxygen	Perineal	living	perfect control	2 yrs.	.....	Benign	Cystoscopy
76	Patternmaker	74	10	3	Hemorrhagic tendency; septic	2-10	Ether (drop method)	Perineal	living	perfect control	2 yrs.	.....	Benign	Died at distant hospital
77	None	83	3	3	Persistent hemorrhage from bladder	2-10	Ether (drop method)	Perineal	died	12 hrs.	.....	Hemorrhage	Not determined	.....
78	Farmer	70	2	3	Nephritis (chronic)	4-10	Gas ether	Suprapubic	living	some weeks later	1 1/2 yrs.	.....	Benign	.....
79	Factory emp	71	2	3	Arterial sclerosis	12-10	Ether (drop method)	Perineal	living	perfect control	1 1/2 yrs.	.....	Benign	.....
80	Painter	64	8 1/2	2	Emaciated; arterio-sclerosis; hemorrhoids	1-11	Ether (drop method)	Suprapubic	living	slight incontinence	1 yr.	.....	Benign	In good condition
81	Farmer	60	2	2	Intravesical growth	3-11	Ether (drop method)	Suprapubic	living	perfect control	1 yr.	.....	Benign	Still living, good condition
82	Farmer	71	2	2	Lacerated urethra; hemorrhage	4-11	Ether (drop method)	Perineal	living	good control	1 yr.	.....	Benign	Working regularly; gaining business
83	Farmer	62	6	3	Pulmonary tuberculosis	6-11	Gas oxygen	Suprapubic	living	partial recovery	10 mos.	.....	Benign	At work, in good condition
84	Lawyer	62	3	3	Sclerosis	7-11	Ether (drop method)	Suprapubic	living	perfect control	9 mos.	.....	Benign	Perfect control—ret'd to work
85	Farmer	72	2	2	.....	7-11	Gas ether	Suprapubic	living	perfect control	7 mos.	.....	Benign	Excellent health, returned to business
86	Clerk	52	2	2	Hemorrhage, sepsis	9-11	Gas ether	Suprapubic	living	perfect control	7 mos.	.....	Benign	Still suffering from stomacal condition
87	Carpenter	76	5	2	Retention, hemorrhage	9-11	Gas ether	Suprapubic	living	perfect control	7 mos.	.....	Benign	General health improved
88	Farmer	70	2	2	.....	9-11	Gas ether	Suprapubic	living	perfect control	7 mos.	.....	Benign	Returned to work, health improved
89	Clerk	77	4	3	Chronic gastric ulcer; gastric carcinoma	9-11	Ether (drop method)	Suprapubic	living	perfect control	7 mos.	.....	Benign	Returned to work, health improved
90	Farmer	76	1	3	Sepsis, retention, hemorrhage, arterial sclerosis	9-11	Ether (drop method)	Suprapubic	living	perfect control	7 mos.	.....	Benign	Returned to work, health improved
91	Foreman	64	1	2	Pyelitis, chronic cystitis	11-11	Ether (drop method)	Suprapubic	living	slight urinary fistula persists	5 mos.	.....	Benign	Returned to work, health improved
92	Patternmaker	58	3	3	Retention, peritonitis fr. aspiration	11-11	Ether (drop method)	Perineal	living	perfect control	5 mos.	.....	Benign	Returned to work, health improved
93	Farmer	73	1	3	Feeble heart action; chronic nephritis	11-11	Ether (drop method)	Perineal	living	contraction vesical neck requiring sounds	5 mos.	.....	Benign	Marked improvement since operation
94	Brickmaker	73	2	3	Complete obstruction	12-11	Gas-oxygen-ether	Per. partial	living	good control	4 mos.	.....	Benign	Excellent health
95	Mechanic	72	3	3	Bronchitis; arterial sclerosis	12-11	Gas-ether	Suprapubic	living	perfect control	4 mos.	.....	Benign	Rest'd law prac.; gained 12 lbs.
96	Lawyer	62	3	3	Pulmonary tuberculosis	1-12	Gas-oxygen-ether	Suprapubic	living	perfect control	3 mos.	.....	Benign	Excellent condition
97	Teamster	63	12	2	.....	1-12	Ether (drop method)	Suprapubic	living	perfect control	3 mos.	.....	Benign	General health improved
98	Manager	70	2	2	Pyelitis	3-12	Gas ether	Suprapubic	living	.....	1 mo.	.....	Benign	.....
99	Teacher	58	so'e yrs.	3	Retention, hemorrhage; subject to heart attacks	3-12	Ether (drop method)	Suprapubic	living	.....	1 mo.	.....	Benign	Probable cardiac embolism
100	Farmer	70	2	2	.....	3-12	Ether (drop method)	Suprapubic	living	.....	1 mo.	.....	Benign	Too early for ultimate result

abdominal wall and peritoneal cavity, the more prompt healing of the wound and the visual control of the enucleation in the Young operation. The advantages of the suprapubic route are the more thorough examination of the bladder, the facility of dealing with calculi and growths, less frequent post-operative epididymitis, and the better functional results, especially in regard to complete continence. Where so many factors are involved, favoring one route or the other, careful decision and good judgment are required. One should be equally prepared to adopt the better route in each case.

From this series, considered in connection with the reports from other workers in this field, one must admit that the progress in prostatic surgery has been marked and gratifying, and that at present much of the dread and danger of the operation as at first performed has been eliminated and that the former occasional brilliant result should now be the rule.

I have been ably assisted from the first in the great majority of these operations by my associate, Dr. George N. Bell, eight of this series having been performed by him. We have been fortunate in having the services of a skilled anesthetist, Dr. Orin R. Witter, in a number of the last seventy-five cases. The pathological work has been performed by Dr. Walter R. Steiner, Dr. O. R. Witter, and Dr. H. C. Russ. Many of the cystoscopic and renal function tests have been made by Dr. Charles S. Stern and Dr. Thomas N. Hepburn, to all of whom I wish to express my grateful appreciation.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

## PHIMOSIS: ITS RELATION TO SOME OF THE MORE FREQUENT GENITO-URINARY DISEASES.

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**P**HIMOSIS, or that condition of the preputial orifice which prevents the retraction of the foreskin over the glans penis, is interesting and important both on account of its frequency and from its etiological relationship to other genito-urinary diseases.

Phimosis is to be differentiated from simple redundancy of the prepuce, the latter condition being a most important predisposing factor in the production of the former. In many instances redundancy of the prepuce is responsible for the acquisition of infectious conditions, but the fact that the prepuce can be retracted, and the necessary cleanliness observed, renders the parts less liable to infection than where true phimosis is present.

While the classification of congenital and acquired forms of phimosis is useful for purposes of description, we must not draw too hasty conclusions as to its origin, for the reason that while the prepuce in the majority of babies and young boys is long and redundant, it is seldom that it is altogether impossible for it to be retracted, and it is probable that many of the cases which are called congenital are not of true congenital formation but owe their development to inflammation excited by the conditions to which the redundant prepuce gives rise.

Such conditions of redundancy invite recurring attacks of balanitis or balano-posthitis and as a result of this, if parents are not particular to see that the foreskin is retracted when the child is bathed, contraction of the preputial orifice is likely to take place and, as a consequence of the inflammatory infiltration, phimosis results.

In cases of simple redundancy of the prepuce in young children circumcision may often seem advisable. It is important to remember, however, that as the child grows older and the organ enlarges the disproportionate length of the foreskin diminishes and in the adult frequently assumes a more normal proportion. For this reason circumcision should not be too hastily advised

in these cases, the institution of hygienic measures being often all that is necessary to prevent the occurrence of true phimosis. In older children or the adult where there is redundancy of the foreskin with a tendency to balanitis, providing ordinary measures are not successful in preventing the recurring attacks of inflammation, there should be no hesitation in advising circumcision, as it is a well recognised fact that the condition may be the exciting cause of more or less serious non-venereal diseases affecting the penis, and also because, as has already been stated, there is always increased liability to acquired infection when the prepuce is abnormally long.

Many cases of true congenital phimosis are undoubtedly seen, and cases are recorded where at birth no preputial opening whatever existed.

In young children enuresis has been attributed to phimosis, and in some cases circumcision has resulted in a cure. Rheiner has lately called attention to cases of retention of urine which have also been assigned to this cause, but asserts that they were generally attributable to voluntary retention on account of the pain which irritating urine caused in passing over the inflamed surfaces. Many reflex nervous conditions have also been said to be due to this cause in young boys. Such a possibility must be borne in mind in treating these troubles, and where no other definite etiological factor can be ascertained treatment can be directed to such a cause.

The physician is seldom consulted where a condition of phimosis alone is present, little attention being generally paid to it, even if it is recognised, and it is usually not until some complication arises demanding interference that it is brought to his attention.

It is unfortunately true that the majority of parents or nurses are very negligent in regard to the care of these parts, and do not appreciate its importance, or if they do for other reasons fail to give the attention to cleanliness of the genitals that is given to other parts of the body. Uncleanliness leads to the accumulation of the normal secretion, and nearly every one has seen the large masses of smegma which are often found lying beneath a prepuce which has not been properly retracted and cleaned for some time. This may lead to masturbation from the attempts of the child to relieve the irritation by rubbing the parts. In such cases there are not infrequently found adhesions

of the two apposed surfaces. These are sometimes so extensive as to entirely obliterate the preputial cavity and altogether prevent retraction. I recently saw such a condition in a young man where the line of demarcation was almost impossible to discover. This undoubtedly results from the recurrent attacks of balanoposthitis bound to be induced by such a cause.

The balanitis or balanoposthitis arising from such causes may give rise to more or less discharge, resembling somewhat in character that of gonorrhea, for which it is not infrequently mistaken, especially in the adult. I have seen a number of such cases where a mistake of this kind was made, though it is difficult to understand how this is possible if ordinary care is taken in the examination of such cases.

Chancroids are especially liable to occur where phimosis is present, and are often found as a ring encircling the preputial opening. Such a condition is shown in Fig. 1. In many cases they are difficult to treat successfully when complicated by a condition of this sort, and circumcision is often imperatively demanded even though reinfection is liable to take place.

Lesions occurring beneath a stenosed preputial orifice are often seen and give rise to much anxiety as to the best method of treatment to pursue in such cases. As a general rule it is better, if not distinctly contraindicated, to follow a conservative treatment for a time, carefully watching the course of the lesion as far as possible by the sense of touch through the foreskin. If irrigations and injections into the preputial cavity do not result in bringing about an improvement in a short time, the preputial cavity should be opened either by means of a dorsal or, what is better in many cases, bilateral incisions, so that the lesion may be seen and treated, though infection of the raw surfaces may possibly take place. Cauterization of the incision with the galvano-cautery may aid in preventing infection, though the method does not appeal to me.

The development of a chancre in or about a contracted preputial opening usually leads to greater stenosis, which may be either temporary or permanent, and in some cases may be the cause of serious complications. See Fig. II. Such a case came under my observation a short time ago.

The patient was a young man of 23 years of age who came to me complaining of great difficulty in passing urine. The trouble had existed to a slight extent from childhood, but in the

last few weeks had become so serious that he was compelled to strain from five to fifteen minutes in the effort to void urine, the prepuce ballooning out to a great degree at every attempt at urination. The frequency of urination was considerably in-



FIG. I. CHANCROIDS WITH PHIMOSIS

creased and he suffered from pain in the region of the bladder on every attempt at urination. The examination showed a long foreskin with an opening that at first was difficult to find and so small that no probe could be introduced. There was some thickening but no marked evidence of a lesion of any sort existed.



Circumcision was advised on account of the increasing urinary difficulty and the patient very readily consented. It was done under cocaine anaesthesia in the usual manner. When the glans was exposed it was found much inflamed and covered with



FIG. II. CHANCER WITH PHIMOSIS

thickened patches of inflammatory material and the mucous membrane of the prepuce was considerably thickened and very rough to the touch.

As soon as the patient arose from the operating table a gush of urine—23 ounces in all—took place, which he was unable to

control, and for a few days afterwards he had some incontinence.

The specimen showed a preputial opening through which only the smallest filiform would pass. There was slight thicken-

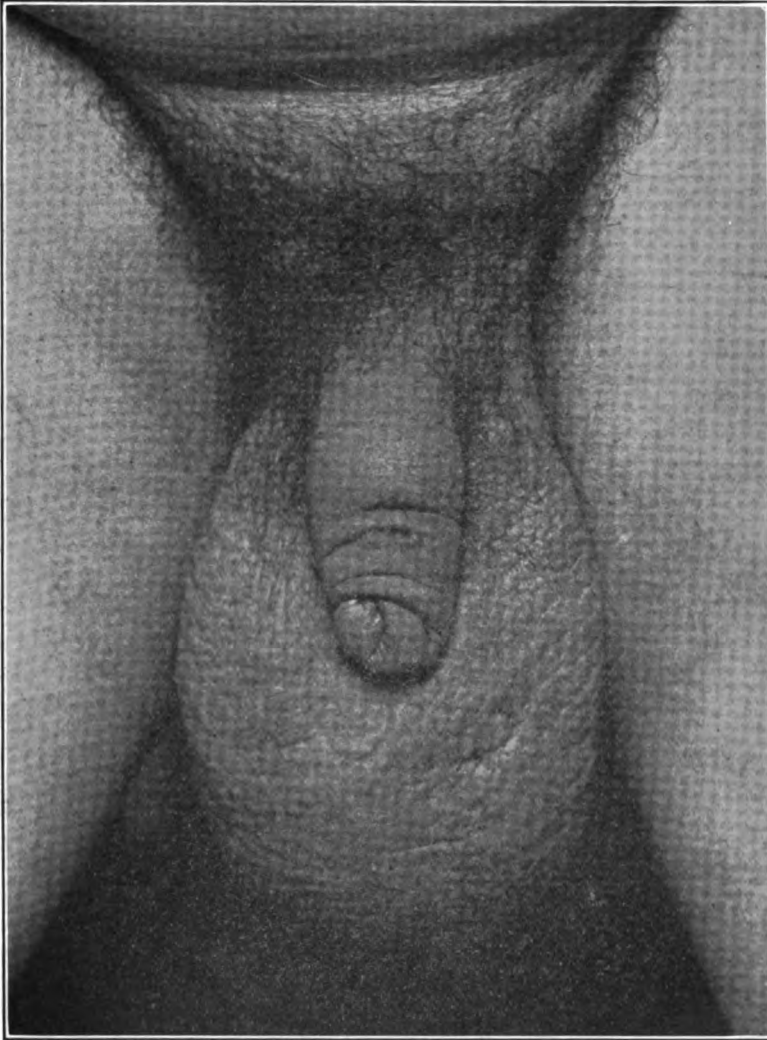


FIG. III. EDEMA OF PENIS AND SCROTUM

ing but no distinct induration in the surrounding tissues and no marked evidence of a lesion. About a week later he developed a syphilitic roseola although up to that time there had been no suspicion as to the nature of the condition.

A case of this sort was seen by Dr. John van der Poel where, as he informs me, extravasation of urine occurred into the penile tissues, the result of rupture underneath the distended prepuce.

In cases of phimosis due to a chancre, as the result of treatment the condition of the preputial orifice may be relieved and retraction again become possible. The following case illustrates such a condition. A man was referred to me with an indurated lesion at the preputial opening. Retraction of the prepuce which



FIG. IV. PAPILLOMA RESULTING FROM GONORRHEA

had been possible up to the time that the lesion developed was now altogether impossible. There was also an area of marked induration on the inner surface of the prepuce. As there was no evidence of destruction of tissue going on, he was ordered sub-preputial irrigations and a wet dressing of bichloride of mercury, 1 to 2,000, externally. In the course of a short time the phimosis was relieved and retraction of the foreskin again became possible.

In cases of chancroidal lesions at the preputial opening, on account of the cicatricial contraction the stenosis generally becomes more marked.

Simple edematous swelling may be a factor of considerable etiological importance in the production of phimosis. Generally where the edema is not due to syphilitic manifestations, as described by Taylor under the name of indurating edema, the phimosis is relieved and retraction of the prepuce becomes possible when the cause of the edema is cured. Edematous swelling causing phimosis is shown in Fig. III.

Preputial calculi are occasionally seen as a complication of phimosis and may give rise to a suspicion of malignant disease, though the history and a careful examination should lead to a correct diagnosis.

Papillomatous tumors are quite frequently encountered as an accompaniment of phimosis, the heat, moisture and retained secretions being favorable to their development. In cases of urethritis they sometimes develop at the preputial opening and may resemble somewhat malignant disease. See Fig. IV. When these growths are found in middle life they should always be looked upon with suspicion on account of the resemblance which malignant growths often have to these tumors. I have seen several cases where these seemingly benign tumors have eventually proven to be malignant. Circumcision is always indicated where papillomata are found with a redundant or phimotic prepuce, and if there is the least question as to their nature they should be examined microscopically, because in these cases only an early and radical operation offers any hope of a cure.

Urethritis, on account of the irritating discharge, may be the cause of phimosis which is generally temporary, subsiding rapidly under appropriate treatment. See Fig. V.

The treatment of phimosis depends upon its cause. If due to acute inflammatory conditions cold wet dressings of lead and opium are often beneficial. If lesions are present wet dressings of bichloride of mercury 1 to 2,000 may be used to advantage. In some cases of chancroids solutions of zinc sulphate 1 to 2 grains to the ounce will frequently cause a foul-looking lesion to take on a healthy appearance in a short time. In babies it may be possible to so dilate the preputial opening that the foreskin can be retracted. If, in such cases, sufficient care and cleanliness are exercised it frequently will be all that is necessary. If the par-

ents are negligent and careless, however, it will be better to circumcise the child at once. I am not an advocate of universal circumcision and it is generally better, I believe, to wait until the

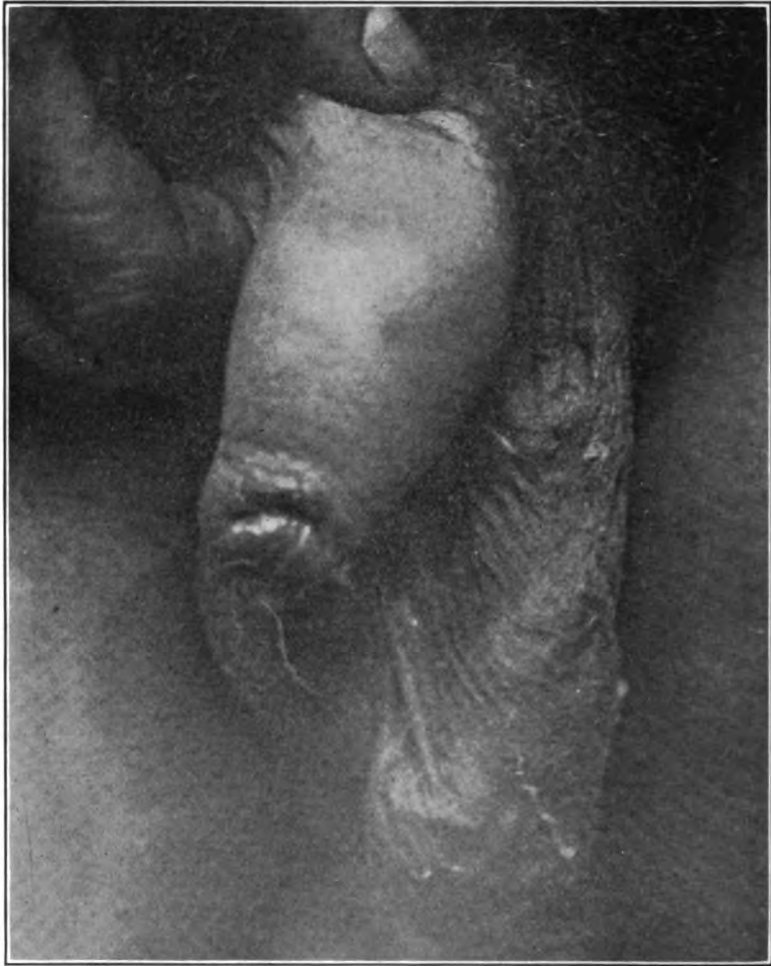


FIG. V. GONORRHEAL PHIMOSIS

parts have assumed a more normal size before circumcision is performed, for the reason already stated. It is, however, most important that the physician should see that the prepuce of all babies can be properly retracted and the adhesions, if present, broken up and the parents or attendants instructed as to the

necessity of thoroughly uncovering the glans whenever the child is bathed so that the parts may be kept scrupulously clean.

Circumcision is the only procedure worthy of consideration in the great majority of cases where the phimosis cannot be relieved by attention to the condition which has caused the stenosis. Incision may, however, under exceptional conditions be justified, especially if there is any complicating condition present.

It is not necessary to go into the details of circumcision. The operation is so simple that it is one of the first usually performed by the young surgeon. Some care and experience are, however, necessary to obtain the best results, though it is surprising how little deformity eventually results even if the foreskin is removed in the most ragged and haphazard manner.

66 WEST 71ST STREET.

## SIGMOIDO-VESICAL FISTULA: REPORT OF TWO CASES.\*

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**T**HE study of sigmoid diverticula and its complications as a pathological entity has thrown new light on some morbid conditions of the bladder that formerly were not entirely understood.

Diverticulitis of the sigmoid flexure is a condition, that is merely alluded to in some text books on surgery and proctology and in many not referred to at all.

Until 1898 reports of such a condition in medical literature are very meagre. Maxwell Telling of Leeds, England, in that year collected all the cases reported to that date, and for the first time summarized the cases. English literature was without any clear description of this condition until then. His summary has served as a basis for most of the contributions to date, to which we acknowledge our indebtedness.

Diverticuli may exist congenitally or acquired, in various parts of the large intestine. They are merely hernial protusions of the coats of the bowels, of various sizes.

They are most common in the sigmoid flexure and here attain the largest size.

On account of the proximity of the rectum and sigmoid flexure of the colon to the bladder and urethra, we as urologists are particularly interested in this pathological condition by reason of the fact that secondary bladder disease and complications very shortly follow such a primary sigmoidal condition.

Not all sigmoid diverticula cause complications with other viscera, but the formation of adhesions between the sigmoid loop and the bladder is very common. Later a fistulous communication between the bowel and bladder occurs. According to Telling in his classic article (*The Proctologist*, Vol. 5, No. 1) such a condition is frequently mistaken for carcinoma.

He says, "The diverticula themselves are buried in a mass of hardened fibrous tissue which very frequently gives rise to secondary adhesions to adjacent viscera. This leads to one of the most important results—the mimicry of carcinoma. It is not surprising that the surgeon, when he opens the abdomen and

\* Read at the annual meeting of American Urological Association, New York City, April 4, 1912.

sees such a tumor of the sigmoid loop, should regard it as carcinoma, considering the relative frequency of malignant disease in this region. In the past the tumor has been dealt with under this mistaken diagnosis: such specimens have been found on museum shelves labeled 'carcinoma.' If not labeled carcinoma they are put up as 'simple inflammatory stenosis.' In the majority of cases of peridiverticulitis, ulceration of the mucous surface of the gut does not occur. But perhaps one of the greatest revelations which the study of these diverticula has made lies in the further light which is thrown upon our knowledge of vesico-sigmoid fistula. From the anatomical disposition of the parts it is obvious that adhesion between a peridiverticulitis and the bladder will be likely to occur. When it is remembered that such adhesion occurs at the end of a pouch which has fecal contents, and which pouch may at any time become perforated and give rise to a suppurative process between the inflammatory sigmoid mass and the bladder-wall, it is not surprising that a fistulous communication between the two viscera should occasionally result. The fistulous communication is often a narrow and tortuous tract which tunnels a considerable thickness of inflammatory fibrous tissue. In 1908 I could only place on record 11 such cases. One of these, which I recorded for the first time, I discovered on the shelves of the museum of Guy's Hospital, the diverticular origin not having been recognized; the fibrous tissue intervening between the bladder and bowel wall was some two inches thick."

"Clinically, the age of the patient has a great bearing on the diagnosis and one would hesitate very much in making a diagnosis of diverticulitis in a patient under 40 years of age, though Fiedler has described a well marked case at 22, and diverticula with secondary inflammation have been noticed in one instance at the age of 5. (Ashurst, *Annals of Surgery*, Vol. 47)."

Most surgeons maintain that vesico-sigmoid fistula is the result of malignant disease. As a result of the study of diverticulitis cases we now know that this is not always the case. Adhesions between the bladder and sigmoid or small intestines may result also from ulcerations, either tubercular or syphilitic in origin, becoming extensive and a fistulous communication forming between them. Enterovesical and rectovesical fistulae may result from trauma, bullet wounds, foreign substances in the bowel, stone in the bladder, and from destructive inflammatory processes, such as fecal matter collecting in diverticula forming



in the walls of the sigmoid or colon. Tuttle reports 89 cases of bladder fistula communicating with the rectum. He says, "A fact which should be remembered is that while a stone may exist in the bladder in these cases, it is not necessarily the cause of fistula, but may be the result of same through some of the fecal contents escaping into the organ and thus forming a nucleus around which the stone forms."

Cripps has collected 63 cases of entero-vesical fistula, in which the intestinal opening was in 15 cases into the sigmoid flexure.

Monnihan calls attention to the frequency of the diverticular origin of vesico-colic fistula. He says, "The formation of a vesico-intestinal fistula seems to be one of the tendencies of perforated false diverticulum; a search through the literature has shown that it is far more common than was supposed. In cases where a hard growth in the intestine is accompanied by the passage of flatus and feces by the urethra, a diagnosis of carcinoma seems to be irresistible, yet the probability is 'that the growth' would be simple, and that the cause of the fistula would be a false diverticulum which had burrowed its way through all the coats of the bowel, and thence through the wall of the bladder which had become adherent."

The cardinal point in diagnosis of all vesico-intestinal fistulae is the presence of gas and fecal matter in the bladder and urine. Whether urine escapes into the bowel or not depends entirely on the location of the fistulous opening in the bladder. In our case there was no escape of urine apparently into the rectum, nor was there any marked degree of proctitis shown by proctoscopic examination, because the opening into the bladder was at the extreme left side of the fundus. The bladder, on account of such severe cystitis, did not retain any quantity of urine for any considerable time, the desire to urinate was almost constant, and hence the viscus was never completely filled.

The case which we report as follows, is of interest. Miss B. K., age 40. Family history negative, father died at age of 81, mother at 48, with anasarca. She has four brothers living and three sisters all in good health. One sister died of pulmonary tuberculosis at 33, but was a graduate nurse and probably contracted the disease while performing her duties.

She had none of the diseases of childhood, but was a very puny infant. Menstruation began at the age of ten and always regular. She had worked hard from childhood and thinks her

trouble dated back to the age of sixteen, when she claims that she helped her father in some construction work on a house and, while chopping off the mortar from bricks with a hatchet, she bruised her left side with several of the bricks. She has done housework for some years and has suffered with obstinate constipation for years.

In August, 1910, the patient consulted her physician, Dr. J. A. Hartmann, of St. Louis, who later referred the case to the writers. For two years previous to this time she complained of pain in the left lumbar region and had passed blood from the bowels at times, attributing this to hemorrhoids. Soon after this she noticed some pus passing with her stool. Pain was never constant. Since passing pus from the bowels she has had more distress in the lumbar region.

Three weeks preceding her first visit to Dr. Hartmann she passed about a pint of blood from her urethra. This was about a week after menstruation had ceased. From that time on the pains have been constant and severe, and excruciating when the bowels moved, especially in the bladder and urethra. She took frequent laxatives, as magnesium sulphate and citrate, these would increase the urethral pain on urination. (We believe her urethral pain was due to the irritation of fecal matter passing out with the urine.)

One week before consulting Dr. Hartmann, she ate some grapes and passed the seeds as she said, "through the vagina."

Her weight was not apparently influenced by her sickness, until her confinement in the hospital when she began to rapidly fail.

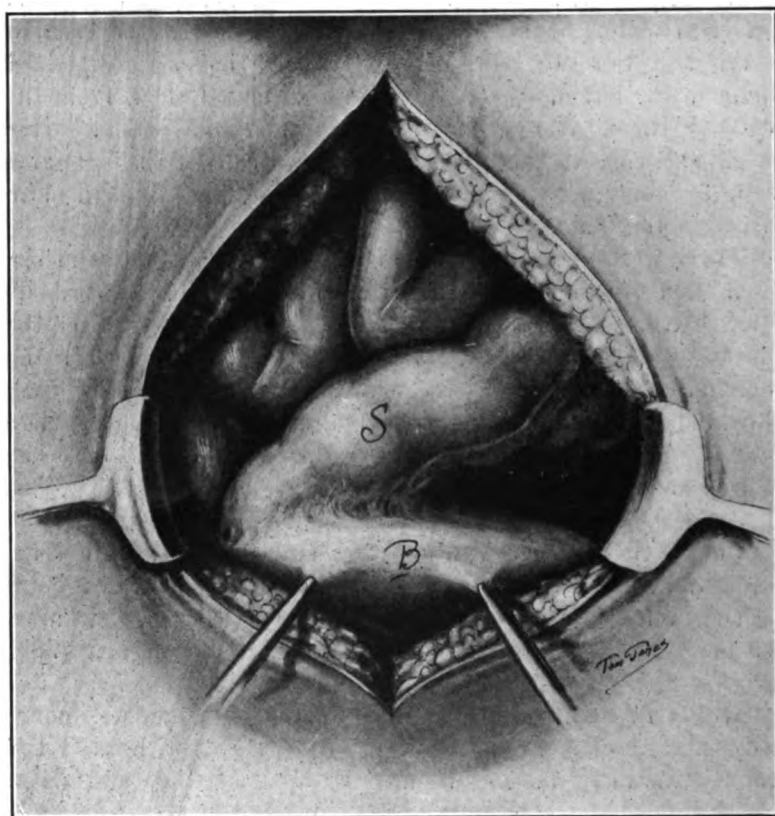
*Status Praesens*—Large, healthy-looking woman, well nourished, color good. Frequent desire to urinate, with no relief after micturition. Passes an ounce or less each time and arises at least three times each night to micturate. Feels as if bowels want to move very frequently. Straining at stool constantly, she says she feels as if some obstruction is near the anus. She passes fecal matter per urethram, molded in a shape conforming to urethra. Severe pains radiating to lumbar region starting in left iliac fossa, and also down the thigh to the knee. One of these attacks in which we saw her was like a renal colic.

Hot and local applications give no relief. Eating of foods rich in cellulose, such as beans, etc., produced more distress.

Vaginal examination shows a rectocele and vesicocele, no

fistulous communication between the vagina and bladder or bowel. Bladder catheterized shows thick purulent urine mixed with fecal matter.

After washing bladder a long time we succeeded in getting a return flow fairly clear, and then cystoscoped, showing a most severe cystitis diffused throughout the bladder, with large areas



S.—SIGMOID. B.—BLADDER

of denudation. In the extreme upper left angle of the fundus we noticed a dark area, which we thought to be a pocket, and on moving the cystoscope up near it we observed that the beak of the instrument entered this space.

Realizing that we had a hole in the bladder wall an assistant was asked to insert a rectal tube and inject methylene blue solution into the bowel which showed that the blue solution quickly

trickled into the bladder. Our diagnosis then was complete of fistula communicating with the bowel.

Patient was operated on in a few days. Abdominal section disclosed adhesion between the sigmoid flexure, left fallopian tube and bladder. A large sinus existed between the bladder and sigmoid, through which the tip of the little finger would pass, and fecal matter was escaping into bladder.

The sinus was resected by removing the sigmoid and portion of the bladder. The upper end of the colon was united to the rectum. The opening of the bladder was difficult to close on account of the wall being so indurated. The defect in the bladder was closed by suturing the fundus of uterus to the bladder. Bladder was drained by catheter.

Patient succumbed to peritonitis three days after operation. Section of removed mass shows sigmoid much thickened, mucosa normal, submucosa and muscularis enormously enlarged. In submucosa we find adenocarcinoma. Bladder mucosa and wall show degenerated nuclei, which do not take up stain. The specimen is one of bladder carcinoma with adhesion to the sigmoid.

J. R. Pennington (*Proctologist*, Vol. 2, No. 3, 1908) reports a case in a male, age 43, of carcinoma involving the upper part of the rectum and sigmoid flexure. Laparotomy showed the posterior wall of the bladder was involved. An inguinal colostomy was done. Patient passed gas and fecal matter from the bladder, and tried to urinate every few minutes. A suprapubic cystotomy 36 hours after the colostomy showed the bladder to be a carcinomatous mass filled with feces and urine. He died six weeks after operation.

Wilson (*Annals of Surgery*, Feb., 1911) summarizes 15 cases of diverticula of the lower bowel studied at the Mayo clinic to December, 1910. In cases of peridiverticulitis he finds that the inflammation does not involve the mucosa of the bowel.

Griffin (*Annals of Surgery*, April, 1911) reports a case in the Mayo clinic of a male, 48 years old, with rectal diverticulitis, who noticed blood in the bowel movements seven months previously. Patient lost rapidly in strength and eleven pounds in weight. Tumor extended four inches above the anus up to the lower sigmoid, as shown by operation. The seminal vesicles were involved and had to be removed. He calls attention to the possibility of mistaking diverticulitis of the rectum for syphilitic and inflammatory stricture.

W. J. Mayo (*Surgery, Gynecology and Obstetrics*, July, 1907) reports a case that was seen by him in 1896, with a fecal fistula into the bladder; evacuation of pus, gas and feces into the bladder. Diagnosis was made of probable appendicial abscess with secondary intestinal fistula. Abdominal section revealed a vesico-sigmoidal fistula. A combined urinary and fecal fistula to the surface was the result.

Souther (*The Lancet Clinic*, Vol. 106, No. 20) reports a case in a male age 57. Had syphilis thirty years previously. Had irritable bladder for some time and later passed gas through the urethra.

When seen by Dr. Souther in Aug., 1909, gas and particles of feces were passed from the urethra. Patient lost weight, had frequent and painful vesical tenesmus. Physical examination showed an easily palpable tumor above the left Poupart's ligament, which seemed to be fixed to the bladder region and could not be moved. Abdomen distended and tympanitic. Constipation existed almost to obstruction of the bowels. Urination took place every 20 minutes day and night. Gas was passed with each effort to urinate. Septic temperature and chills.

Cystoscopic examination was unsatisfactory on account of inability to fill the bladder, as the water would run out of same. No information as to the location of the fistula was gained. The coil of the sigmoid as revealed by laparotomy was intimately blended with the peritoneum of the lateral wall of the bladder and pelvis. Complete removal seemed inadvisable and probably impossible. A lateral anastomosis was decided upon. Diagnosis was between gumma and carcinoma.

A second case, under observation of one of the writers, is that of a male, age 84, retired merchant. Examination on Feb. 8th, 1912, showed patient to be fairly rugged for his age. Prostate by rectal palpation felt atrophied but nodulated; and higher up a mass in the wall of rectum was distinctly felt. Capacity of bladder was 15 ounces, bladder seemed to be anesthetic, as marked distension with fluids did not seem to pain patient. For some months previously to coming under our observation patient urinated frequently during day and night, and in the last few weeks he finds it impossible to evacuate bladder without a catheter. Bladder badly infected and much pain when he strains at stool. No gas was seen to pass from urethra at first examination. Cystoscopy showed an apparent atrophied blad-

der mucosa, no rugae, no evidence of prostatic enlargement intravesically. Marked cystitis shown by ulcerated areas. A saccululation of left side of bladder wall was plainly seen..

Two weeks after patient entered hospital he began passing gas and fecal matter from the bladder when catheterized, with great pain on introduction of the catheter each time, and an obstruction in the region of the prostate was encountered, due as we believe to the breaking down of a malignant mass. Abdomen was very much distended, the abdominal wall was very thin and there was a large mass, in which the bladder was included, reaching from the pubic bone almost to the umbilicus, which was of a doughy consistence, painful on manipulation. A diagnosis was made of entero-vesical fistula and suprapubic cystotomy for drainage advised. This was refused by the family because no permanent cure or positive assurance of any benefit was promised. Patient died of sepsis and myocarditis on March 21. Autopsy showed a bladder wall about as thick as heavy wrapping paper, dense adhesions surrounding the whole bladder, which was connected in a mass to the sigmoid and rectum. A carcinomatous mass existed on the posterior wall and on the left side of the viscus an opening into the bowel was found through which one finger readily passed. The whole bladder mucosa showed a hemorrhagic cystitis. In this case, when the rectal tube was passed for irrigation of the bowel, a mass was encountered in the rectum which acted as an obstacle to the thorough evacuation of the gut. This patient gave a history of chronic constipation.

#### SUMMARY

What may appear as primary carcinoma of the bladder is at times secondary bladder involvement due to malignant changes occurring in an intestinal diverticulitis.

The intestinal mucosa may not show histologically malignant changes even when the carcinoma is primary in the walls of the bowel and extends into the bladder secondarily.

Close observation of the rectum and sigmoid flexure is mandatory, as well as a study of the male pelvis in suspicious cases of cancer of the bladder other than prostatic cancer.

Early recognition of diverticula and peridiverticulitis of the lower large gut will when surgically treated abort an ultimate entero-vesical fistula.

It is probable that many cases of cancer of the prostate are

due to extension from such malignant changes in a rectal diverticulitis low down in the wall of the gut.

## BIBLIOGRAPHY

- Sigmoiditis and Perisigmoiditis. Maurice Patel, *Reveu de Chirurgie*, October and December, 1907.
- Acquired Diverticula of the Sigmoid Flexure. W. H. Maxwell Telling, *The Lancet*, London, March 21 and 28, 1908.
- Cancer of the Rectum: Comparative Results of Operative Procedures. J. Rawson Pennington, *The Proctologist*, Vol. II, page 167.
- Treatment of Fistula between Intestine and Bladder by Exclusion of Former. W. Sachs, *Deut. Zeit. f. Chir.*, Dec. 1909.
- Diverticula of the Lower Bowel; Their Development and Relationship to Carcinoma. L. B. Wilson, *Annals of Surgery*, Feb. 1911.
- Diseases of Anus, Rectum and Colon, Tuttle, page 440.
- Harrison Cripps, Diseases of Rectum and Anus. 3rd Edition, p. 520.
- The Surgery of the Rectum, Kelsey, 6th Edition, page 172.
- Earle's Diseases of Anus, Rectum and Sigmoid, page 230.
- Sigmoido-vesical Fistula; Lateral Anastomosis; Operation; Recovery. Charles T. Souther, *The Lancet-Clinic*, November 11, 1911.
- Acquired Diverticulitis of the Large Intestine. Wm. J. Mayo, *Surgery, Gynecology and Obstetrics*, July, 1907.
- Diverticulitis of Rectum, Griffin, *Annals of Surgery*, April, 1911.
- A Case of Carcinoma on Diverticulitis of the Sigmoid. Giffin and Wilson, *Amer. Jour. of the Medical Sciences*, Nov., 1909.
- The Clinical Aspects and Importance of Sigmoid Diverticula, W. H. Maxwell Telling, *Proctologist*, March, 1911.

## DILATION, IRRIGATION, AND MEDICATION OF THE URETHRA WITH A NEW SOUND.\*

By A. L. SORESI, M. D., New York.

**N**O attempt is made to give indications for the treatment of diseases of the posterior urethra, but a few considerations are submitted. Diseases of the urethra are more serious in its posterior part than in its anterior, and yet the means of treatment are better adapted for the treatment of the anterior than of the posterior urethra. The ideal for the surgeon would be to dilate, irrigate, and medicate at the same time the posterior urethra, for which various dilators have been invented



FIG 1. A. SORESI'S SOUND FOR DILATATION, IRRIGATION AND MEDICATION OF THE POSTERIOR URETHRA. B. HOLLOW TIP, WITH STOPCOCK WHICH CAN BE CONNECTED WITH SOUND

which often injure these most delicate tissues, and particularly they cause a very severe trauma when the prostate and seminal vesicles are involved. Numerous irrigating sounds have recently been put on the market, but they accomplish not more than an ordinary catheter and sometimes even less.

The sound which I beg to present has the following peculiarities. Besides being made in all sizes and numbers and being curved at the end as the ordinary sounds now in use; it is hollow and on the curve are three perforations (Fig. I, A). The tip is blind and this makes it different from all other irrigating sounds. The end of the sound has a small handle that makes any manipulation with it easy (Fig. I, B). A hollow tip, with a stop cock, made to fit all sounds on one side, and in the other side to be attached with an irrigator or a hand syringe, gives the surgeon the possibility of irrigating the bladder and the urethra whenever he wants to do so.

\* Read at the May meeting of the Genito-Urinary Section, New York Academy of Medicine.



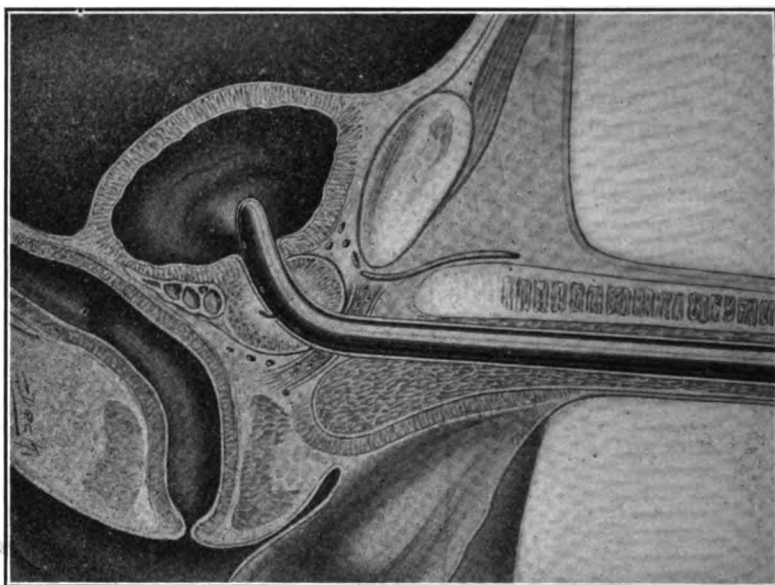


FIG. 2. SOUND IN BLADDER

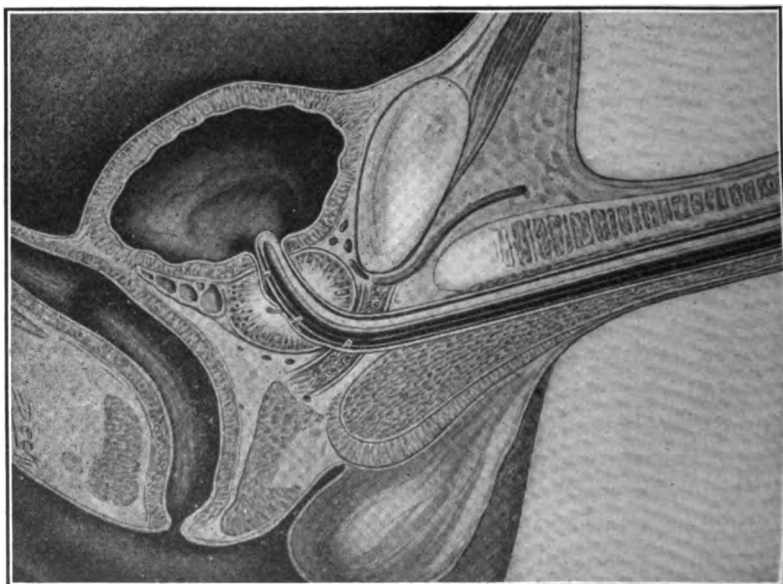


FIG. 3. SOUND IN PLACE, DILATATING, IRRIGATING AND MEDICATING POSTERIOR URETHRA.

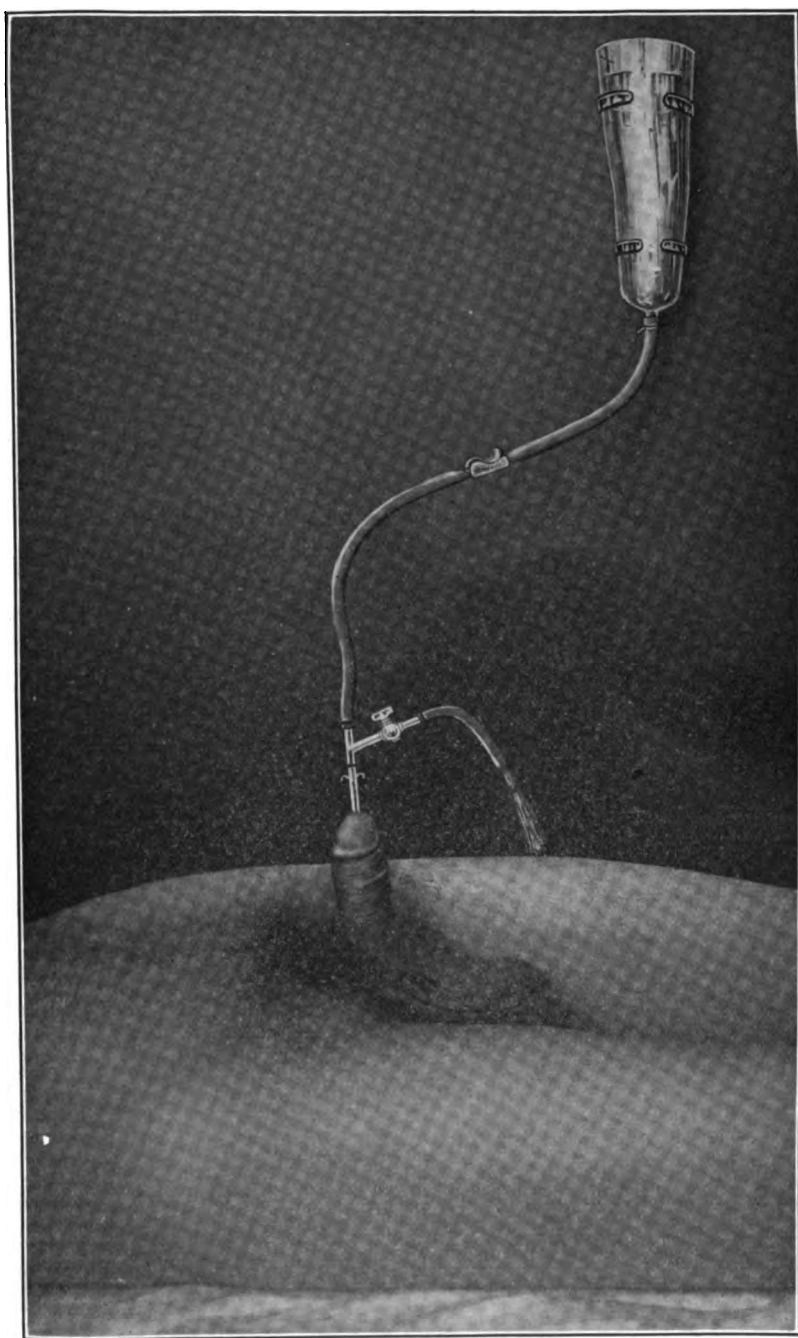


FIG. 4. FLUSHING POSTERIOR URETHRA

The advantages of the instrument are very plain. *It medicates, irrigates and dilates the deep urethra at the same time, without injuring at all even the most inflamed tissues.* The follicles of the deep urethra are flushed out and medicated at the same time, and the surgeon will not fail to see the advantage of such combination in those cases where the ducts are plugged with secretion.

The *modus operandi* is as follows: After the bladder has been evacuated the sound is introduced in the ordinary way. All the residual urine can be drained out of the bladder by pushing the beak of the sound in the bladder just as shown in Fig. 2, and urine will flow through the perforation, draining out even the last drop; if the surgeon intends to wash the bladder he can do so. When through with the bladder the sound is gently withdrawn till the surgeon feels that it is engaged into the posterior urethra as shown in Fig. 3. The stream of a fluid contained in an irrigator or a hand syringe is pushed through the sound (Fig. 4). The fluid will escape through the perforations in the posterior curve of the sound, which correspond exactly to the posterior urethra (see Fig. 3), that will be distended to its full capacity, while it is washed out by the liquid falling back into the bladder. If any medicating liquid is used, it will be seen that while irrigating the posterior urethra the surgeon will also medicate it. If, after having washed out the posterior urethra and drained out all the fluid, the surgeon feels that he wants to leave some medicated liquid or ointment, he can very easily do so, by pressing the liquid through the sound and the liquid will escape exactly on the points of the urethra where the surgeon wants, and while the same is dilated, and therefore the medication comes in contact with the deep tissues of the same.

In one case it has been found very difficult to pass sounds on account of the sensitiveness of the urethra and strictures, and by using the author's sound, injecting liquid which contained lubricant and anesthetic while the sound was going in, this slipped through with relative ease and absence of pain.

These sounds can be sterilized, kept clean, and used in every way as any other ordinary sound, *the edges of the holes in the curve being so smooth that they cannot cause any irritation.*

I want to express my appreciation to Dr. G. Greenberg for his valuable suggestions and extensive use of these sounds in his work in clinics and private practice.

## TWO CASES OF CHRONIC CYSTITIS OF UNUSUAL ORIGIN. (CYSTITIS CYSTITICA AND LEUKOPLAKIA VESICAE)

By JACQUES E. ZIPSER, M.D., New York.

**T**HE two cases of chronic cystitis of unusual origin which I am reporting<sup>1</sup> are of interest from the rarity of the condition and the unusual etiological factors. To escape military service abroad many ingenious devices have been resorted to. These patients on the verge of being drafted into military service resorted to measures to provoke some urinary disturbance which would exempt them from duty. In the one an irritating substance was injected through a catheter into the bladder and the other received what he believed to be an injection of gonorrheal urine into his bladder. In both instances violent symptoms of cystitis arose, running a course over many years, at the end of which time, even though treatment was energetically pursued along medical and surgical lines, the condition remains almost as bad as when it was first evidenced. Clinically, the train of symptoms in each was that of chronic cystitis, but the cystoscopic picture differed, in one was found the appearances of cystitis cystica and in the other that of leukoplakia and chronic cystitis.

Cystitis is produced by the direct action of irritants, living or non-living. The mere presence of bacteria in the bladder urine is not sufficient to set up cystitis—mechanical bruising of the bladder wall or breach of epithelium, the too intense action of caustic solutions, the decomposition products of certain bacteria are the contributing causes which must act in combination with the bacteria to enter walls and set up inflammation.

In case 1 (cystitis cystica) what concerns us most is why should an irritant injected into the bladder produce such a violent type of chronic cystitis, and vary in its cystoscopic appearances from those cystitides merging from an acute type into the chronic, or from the other types of chronic cystitis that show no such unusual bladder picture; and what factors underlie the failure of cure?

The only explanation that can be offered must be based upon the pathological reports of similar cases in the literature that eventually came to autopsy. Upon perusal of these reports we

<sup>1</sup> From the G. U. Surgical service of the Mount Sinai Hospital.

find that concerning cystitis cystica O. Stoerck <sup>2</sup> says: "The so-called Limbeck Brunn's epithelial nests are the seat of the cystitic processes, found either as totally sequestered inclusions of the epithelium or as sprouts in continuity with the surface epithelium."

In consequence of destructive changes in the mucosa and submucosa there occurs a reparatory connective tissue growth rich in the formation of new vessels. The increased vascularity persists and an overproduction of epithelial elements ensues, which shows itself in nests that have lost their connection with the surface epithelium, which have been separated by reason of impoverished nourishment of the binding isthmus coupled with the tearing influence of muscular contraction. Because of the chronic hyperemia and excess in nourishment induced by new formed capillaries, the epithelial cells take on a secretory function, a metamorphosis that is analogous to the appearance of the cylindrical cells in papillary cystitis. Waskressensky <sup>3</sup> reports an unusual case of bladder involvement in a man of 43. Patient complained of severe urinary pressure, hardly able to hold his urine, urine cloudy and on examination leucocytes, diplococci and bacillus coli. Cystoscopic examination showed trigone, base of bladder and walls closely set together with various sizes of vesicles.

The following is the history of Case 1: M. W., Russia, 27 years, single. Family history negative. Pneumonia at 5, typhoid at 9, denies syphilis, gonorrhea at 22. Five years ago had a catheter introduced into his bladder for the purpose of producing hematuria. Two days later had hematuria with frequency of urination. After five days bleeding ceased, but frequency continued every half-hour. His general examination is negative except for a slightly enlarged prostate on left side. Cystoscopy and ureteral catheterization: 3 c.c. on left side, 5 c.c. on right side, ureters normal. Thickening of mucous membrane all over bladder wall. Small area of cystic inflammation. Examination of specimens negative for tuberculosis bacilli. Urine from bladder showed W. B. C. and R. B. C., with a faint trace of albumen, no casts, acid in reaction. Pathological laboratory injected guinea pigs with negative results. The catheterized specimens showed B. pyocyaneus. X-ray negative.

<sup>2</sup> Ueber Cystitis Cystica. O. Stoerck. Beitrage zur pathol. Anat. U. Z. Allge. Path., 1911. Vol. 61, p. 361.

<sup>3</sup> Waskressensky, G. D. Cystitis Cystica, Chiourgit, 1910. Bd. XXVII, No. 158.

At no time during his hospital residence did his temperature rise above 100. In spite of the most persistent and conscientious treatment his condition at this time is as bad as when he was discharged from the hospital. Bladder capacity 2 to 3 oz. Frequency every one-half to one hour, day and night.

CASE 2. While dealing with a train of symptoms similar to that of No. 1, the cystoscopic findings are different. During the past few months I had referred to me a middle-aged man with symptoms of chronic cystitis. Examination revealed a deep-seated stricture and a bladder capacity of but 2 oz. His previous history was that of recurrent vesical calculus operated abroad and in this country. He was so miserable that suprapubic drainage was resorted to. For a few weeks he did well, when suddenly anuria set in and death ensued after a 12-hour coma. Herzen<sup>4</sup> reports a typical case of leukoplakia of a young man who had suffered with dysuria and bacteriuria. Diagnosis made by cystoscope. Microscopically it showed a fundamental epithelial change, a superficial horny layer and a deep granulation layer. Anatomically it is difficult to separate from malakoplakia because the changes take place mostly in the submucosa. Schmid<sup>5</sup> arrives at the conclusion through studying three cases and the scant literature which was first written by Housemann on malakoplakia of the bladder that the affection is an inflammatory one, the main distinguishing feature of which are the big cells which originate from fibroblasts or plasma cells. In certain cases strange substances were found in the cells which responded to chalk and iron reaction. Tuberculosis and inflammatory conditions may give rise to pseudo-malakoplakia.

CASE 2. S. B., 33, Russia, tailor. Family history negative. Previous history negative. Denies gonorrhea and syphilis. Present history began ten years ago following injection of some foreign material; urinated every 2 hours with pain and burning. Eight years ago while in hospital in Russia noticed for the first time blood clots, lasted 3-4 weeks. For the past ten months urinates every hour, associated with severe burning pain at top of penis, accompanied with hematuria. During the last seven years had frequent chills with cloudy urine, frequency, hematuria, pain in loin. General condition poor. Prostate and vesi-

<sup>4</sup> Herzen, P. A. Zur Leukoplakia der Harnblase-Deut. Med. Wochenschr., No. 28.

<sup>5</sup> Schmid, Herman. Beitrag zur Kenntnis der Malakoplakie der Harnblase, Rev. Med. de la Suisse romande, 1909, Nr. 11.

cles slightly enlarged. Bladder capacity  $2\frac{1}{2}$  oz. Cystoscopy: Mucous membrane of bladder shows marked thickening and covered with thick exudate, especially at trigone. Right ureter opening patulous. Some of vesical exudate could be seen sucked in and drawn out through this ureter. Left ureter orifice surrounded with hemorrhagic area.

Suprapubic Cystotomy for Chronic Cystitis (Leukoplakia Vesicæ).—Interior of bladder covered with exudate. At trigone area of irregular shape of epidermization. The right ureteral opening stood out boldly and discharged air and urine from the patulous meatus. Bladder sewed into wound so as to hold it wide open. Area of leukoplakia pearly white, dry and depressed, situated on trigone near right ureter, irregular contour resembling *lingua geographica*. Left seminal vesicle enlarged and tender. X-ray negative. 24-hour urine, 40 oz.; alkaline, albumen, no sugar, urea % 1.35; W. B. C. epithelium. No tuberculosis, no casts. Blood tissue brought on sponges showed degenerated superficial bladder mucosa and urinary salts. Catheterized urine showed *B. Lactis aerogenes*, *B. Proteus*, *staphylococcus albus* and two unidentified gram positive bacilli.

## REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman  
and Walter J. Heimann.

### ZEITSCHRIFT FÜR UROLOGIE

(Trans. German Urological Congress)  
Supplement No. 3, 1912.

1. The Clinical Significance of Urethroscopy. By Oberländer.
2. The Clinical Significance of Urethroscopic Methods. By H. Wossidlo.
3. The Clinical Significance of Urethroscopic Methods. By Ernst R. W. Frank.
4. The Old Egyptian Penis Sheath. By E. Pfister.
5. Concerning Pyelography. By F. Necker.
6. A Case of Double Bladder. By A. v. Frisch.
7. X-Ray Findings in Plastic Induration of the Corpora Cavernosa Penis. By O. Sachs.
8. Prostatectomy and Spontaneous Disruption of Vesical Stones. By Berg.
9. Abnormally Large Cystin Stones in a Child. By Berg.
10. Colloid Carcinoma of the Bladder. By Blum.
11. The Histology in Pyelitis and Pyelonephrosis. By A. Müller.
12. Mixed Tumor of the Female Bladder. By Dora Teleky.

#### 1. The Clinical Significance of Urethroscopy.

This paper by Oberländer will appear in full, in an early issue of the JOURNAL.

#### 2. The Clinical Significance of Urethroscopic Methods.

Discussing the advantages of the direct method of endoscopy and the irrigation procedure in which the telescope is used, H. Wossidlo points out that the former has a sphere of usefulness in the examination of the anterior urethra, the latter method being indispensable for the region of the sphincter and the posterior urethra. The importance of endoscopic examination is very evident in cases of urethral fistula, polypoid growths, folds, diverticula, angiomata and stricture. Often the presence of infiltrated processes, ulceration hypertrophies and cysts that are easily detected with the posterior urethroscope are the cause of distinct symptoms. Thus in some cases, precipitate ejaculation is attributable to an inflammatory condition of the colliculus. In a group of cases in which the disturbances of micturition, increased frequency and pain during the act, are the notable symptoms and where the bladder has been found to be normal, examination with the cysto-urethroscope may reveal an urethrocystitis, posterior urethritis and possibly papillomatous hypertrophy or infiltration of the posterior urethra. When the posterior urethra is treated, the symptoms may completely disappear. Another group of cases complain of inability to completely empty the bladder, and a veritable partial retention may take place. Here a sort of barrier or transverse fold at the vesicle outlet is found in many cases, and



when cauterized the symptoms will promptly disappear. In still other cases, there are characteristic lesions of the vesical sphincter, particularly at the roof and side walls.

### 3. The Clinical Significance of Urethroscopic Methods.

Ernst R. W. Frank calls particular attention to the cautery instrument of Goldschmidt, by means of which a median lobe of an hypertrophic prostate can be incised under the control of the eye. Although but a small number of cases were treated by the author in this way, the results promise to be very satisfactory.

### 4. The Old Egyptian Penis Sheath.

In his historical readings, E. Pfister has found records that indicate the employment of a sort of penis sheath by the old Egyptians. Some 1200 years B. C. a sort of condom was evidently worn, with a view to preventing the contraction of Bilharzia disease.

### 5. Concerning Pyelography.

In a series of studies by F. Necker and R. Paschkis it was found that a normal pelvis may be too small to demonstrate with the pyelographic method. The plates showed that in many cases of clinical pyelitis, some obstruction was present in the ureter, the kidney being secondarily hydronephrotic and infected.

### 6. A Case of Double Bladder.

According to A. v. Frisch, double bladders may be divided by a transverse partition, the so-called hour-glass bladder; by a vertical wall, the so-called *vesica bi-partita*; or with a secondary pouch (*vesica bi-ocularis*). At times, congenital diverticula of the bladder may simulate a double bladder. According to Englisch, a sacculum that does not contain a ureter must be regarded as a secondary cavity or diverticulum. In the author's case, cystoscopic examination revealed a vertical septum that divided the bladder into two parts, each containing one ureter.

### 7. X-Ray Findings in Plastic Induration of the Corpora Cavernosa Penis.

In 1911, O. Sachs had occasion to make X-Ray examinations of five cases of plastic induration of the penis, and demonstrated the presence of bone in three of the cases.

### 8. Prostatectomy and Spontaneous Disruption of Vesical Stones.

The history of an interesting case in which a diverticulum contained 200 calculi, is cited by Berg.

### 9. Abnormally Large Cystin Stones in a Child.

Berg reports the case of a girl 10 years of age, from whom a cystin stone measuring 4.2 x 3.2 x 2 cm. was removed by suprapubic cystotomy. The calculus was completely incarcerated in a diverticulum.

10. **Colloid Carcinoma of the Bladder.**

In an interesting case of colloid carcinoma of the bladder, Blum reports that a cauliflower-like mass was situated in the anterior wall. It was possible to make the diagnosis of colloid growth because of the large amount of mucin in the urine and the mucigenous covering of the tumor. An interesting additional lesion was a cystic condition of the pelvis, ureter and bladder.

11. **The Histology in Pyelitis and Pyelonephritis.**

A. Müller's histological study seems to indicate that the propagation of an infectious process from the pelvis into the kidney takes place by way of the lymphatics. The author assumes that the tubules are secondarily affected.

12. **Mixed Tumor of the Female Bladder.**

Dora Teleky reports the case of a patient who suddenly presented the symptoms of retention of urine, and from whom a tumor the size of a hazel-nut, was excised from the upper margin of the internal sphincter. Upon histological examination it was seen to contain practically all the elements of the skin, lymph follicles, cartilage and bone.

**The Frequency of Surgical Lesions of the Kidney and Ureter as Estimated from Autopsy and Hospital Records.**

E. M. Stanton (*J. A. M. A.*, March 16, 1912), from autopsy records estimates that surgical lesions of the kidney or ureter, of at least practical diagnostic interest, are found in approximately from 4 to 6 per cent. of patients coming to autopsy, and that the great majority of these patients could, at some time, have been cured or greatly benefited by surgical intervention, had an accurate and timely diagnosis been made.

With few exceptions, the renal lesion is the chief factor which determines the death of the patient. From the records of ten representative American hospitals, one per cent. of all patients admitted represents a fair average as to the frequency of these conditions as recognized by the average standards of diagnosis where the X-Ray and cystoscope are made use of only to a limited extent.

FOLIA UROLOGICA

Vol. VI, No. 9, April, 1912.

1. Drain Lost in the Ureter for Six Years and Found in the Bladder; Removal by Vesico-Vaginal Route. By F. Cathelin.
2. The Vaginal Route to the Bladder. By O. Michael.
3. The Lipoids in the Prostate. By F. Randisi.
4. Perineal Urethrostomy. By B. N. Cholzow.
5. Primary Bilateral Malignant Renal Tumors. By Paul Wagner.
1. **Drain Lost in Ureter for Six Years and Found in the Bladder.**

Cathelin reports the case of a woman who had been anesthetized

16 times for various operations and examinations. The last operation was a secondary lumbar neprectomy which was performed for renal fistula following nephro-lithotomy. At the time of this operation (nephro-lithotomy) the patient maintained that a drainage tube had been left in the kidney, but as no tube was discovered at the subsequent nephrctomy, the patient's statements were considered imaginative. No foreign body was detected in the bladder at this time. Two years later the patient complained of severe pain in the right pelvis and the symptoms of a cystitis developed. Cystoscopy showed the presence of a long drainage tube encrusted with salts, the tube no doubt having passed down the ureter into the bladder. The tube could not be removed endovesically on account of the small capacity of the bladder, and it was therefore extracted through a vesico-vaginal incision. The drainage tube had been in the ureter for six years.

### 2. The Vaginal Route to the Bladder.

The author calls attention to the fact that the long neglected operation of colpocystotomy is to be preferred to some of the operative procedures still practiced, such as the vesical incision of Legueu, or dilatation of the urethra. In very adipose subjects the vaginal route is preferable to the suprapubic, and if properly performed the greater part of the bladder can be brought into the field of vision. Other advantages over the suprapubic route are the lower mortality, and better drainage; urinary infiltration with phlegmon formation is never seen after this method. The suprapubic route is preferable in pericystitic abscess and malignant tumors of the bladder. With these exceptions colpocystotomy should be the method of approach for practically all other vesical conditions. The technic is as follows: the bladder is filled with 150-200 c. c. of fluid, and a longitudinal incision made in the anterior vaginal wall; a transverse or slightly curved incision through the trigone is then made just posterior to the sphincter. In infected bladders a permanent catheter should be employed. In uncomplicated cases the patients are out of bed on the day following operation. When cystoscopy cannot be performed, the vaginal route is the method of choice for exploration.

### 3. The Lipoids in the Prostate.

The prostate should be considered as a glandular organ having two types of secretion—the granular or vacuolar and the lipid. In prostatic hypertrophy both types are present; the lipid secretion, however, is more pronounced, as the stroma is found to be in an inflammatory reaction with an increased production of lipid interstitial cells. In prostatic hypertrophy the so-called prostatic secretion is increased; it consists partly of lipoids resulting from degenerated leucocytes or desquamated cells; the prostatic corpuscles and the

homogenous stroma consist probably of lipo-proteinic precipitates. The following are characteristics of the lipoids:

- (a) They stain brown with tetroxide of osmium.
- (b) They are doubly refractile.
- (c) When fresh they can be partly stained with neutral red.
- (d) Some will stain blue by Nile-blue, others markedly bluish-violet, and give a positive reaction with the method of Ciaccio.

Two of their characteristics, the fact that they stain brown with osmium, and are positive after the method of Ciaccio, also apply to the phosphates and esters of cholesterin; it can therefore be assumed that the lipoids of the prostate probably consist of phosphates and complex cholesterin bodies.

It is not easy to determine the function of these lipoids, although their great importance has recently been acknowledged, especially in immunity and bio-chemistry. The author hopes to be able to give some information as to the function of lipoids in a subsequent communication.

#### 4. Perineal Urethrostomy.

For the incurable urethral strictures, that variety that responds neither to dilatation or operative measures, Poncet in 1891 recommended the operation known as urethrostomy. This consists in creating a perineal urethral fistula posterior to the stricture. The fistula may be made temporary or permanent. The technic of producing a permanent fistula consists in opening the urethra behind the stricture, dividing the urethra transversely, mobilizing it for a short distance and suturing it to the skin. The perineal end of the urethra is preferably left open and the wound packed. If a temporary fistula is desired the urethra is simply opened behind the stricture, and the edges sutured to the skin, without dividing the canal, so that its continuity is not disturbed. The author prefers this latter method, for it gives a broader opening with less danger of contraction, and makes subsequent closure possible.

Urethrostomy has received but scant mention in the literature of recent years. The operation is purely palliative, and there should be strict indications for its use. As a result of the operation ejaculation takes place through the perineal wound, potentia generandi is destroyed, while potentia coeundi is preserved; urination takes place in the sitting position. The author cites the following indications for the operation:

- a. Fibrous degeneration of the greater part of the urethra, making urination painful and dilatation impossible, and giving no hope of improvement by other methods of treatment.
- b. Incurable purulent false passages.

c. Certain irreparable defects of the pars pendula produced by various ulcerative processes.

The perineal fistula is preferable to the suprapubic fistula, for in the latter urine escapes continuously, making it necessary to wear a urinal, whereas after urethrostomy the function of the sphincter is not destroyed and urination is under control.

##### 5. Primary Bilateral Malignant Renal Tumors.

Primary, bilateral malignant renal tumors are very rare. According to Küster a review of 607 neoplasms of the kidney showed but 13 authentic cases in which both kidneys were primarily affected. It is often difficult to determine when both kidneys are the seat of new growths, whether both are primary, or one an early metastatic growth. If both renal tumors and the metastatic growths show different pathological and histological characters, then there can be no doubt but that both renal growths are primary. The author reports such a case in a man 76 years old. Pathological and histological examination showed an epinephroma of the right kidney with metastases in the retroperitoneal lymph glands, right suprarenal gland and in both lungs, and a spindle cell sarcoma originating from the capsule of the left kidney, with large sarcomatous metastases in the connective tissue of the left pelvic region. A very unusual feature of this case was the presence of tumor elements in the urine after some of the attacks of hematuria.

## MISCELLANEOUS ABSTRACTS

### A New Method of Treatment of Epididymitis and Gonorrheal Arthritis.

E. Braendle (*Med. Klinik*, March 17, 1912) reports a series of 56 cases of epididymitis, and 17 of gonorrheal arthritis treated with injections of fulmargin, which preparation is the same as electrargol. Injections should be given either intramuscularly or in the diseased part. In the acute cases of arthritis, 10 c. c. of the drug were injected in the gluteal muscles every second or third day, as much as 105 c. c. having been given without untoward results. In most cases the injections are followed by a marked drop in temperature, with diminution of swelling and pain. According to the author the injections of fulmargin produced more beneficial effects than treatment with arthigon. Besides this general treatment the joints should receive the proper local care, and Braendle advises as most satisfactory Bier's hyperemia with bandage applied 23 hours daily, hot air and ichthyolglycerin dressings. No local treatment of the urethra or its adnexa should be carried out during the acute stage; internal treatment with balsamics should be administered; the local treatment should first be started after the sub-acute symptoms have disappeared, which means waiting 4 to 6 months in many cases. Obstinate chronic

forms of arthritis responded very well to X-ray treatment. For acute epididymitis, 10 c. c. of the drug were injected intramuscularly and were most often followed by a drop in temperature and diminution of the swelling. Where the swelling did not subside sufficiently rapidly 1 c. c. was injected into the epididymis itself. By means of this method of treatment the results have been more satisfactory than with any others in vogue, practically all of the cases healing without leaving palpable infiltrations.

#### A Case of Sarcoma of the Prostate.

H. Pleschner (*Wiener Klin. Woch.*, April 11, 1912). Sarcoma of the prostate is a rather rare condition, but 36 undoubted cases having been reported in the literature. The author's case was that of a man 54 years of age, who was suddenly seized with an attack of complete retention one year before admission. These attacks were repeated at frequent intervals, requiring catheterizing for relief; the patient's chief complaints were difficulty of urination and defecation, with some loss of weight. Physical examination showed a tumor over the symphysis the size of a fist, while rectal examination revealed a very large mass, fluctuating at its lower pole. Cystoscopy and X-ray examination showed the presence of a large tumor bulging into the bladder. The tumor was removed by the sacral route, and upon histological examination proved to be a small spindle-cell sarcoma. From the operative findings it was presumed that the growth was of prostatic origin involving mainly the right half of the gland.

#### Concerning Prostatectomy.

Dr. Favento (*Wiener Klin. Woch.*, April 11, 1912) reports a series of 83 prostatectomies, 12 being operated by the perineal route, the others suprapubically. Of the 12 perineal cases, 2 died; the suprapubic operation gave a mortality of 16.9 per cent., most of the patients succumbing to a pyelonephritis. Spinal anesthesia was employed with excellent results. After the prostate was enucleated, the cavity was packed with gauze and a drain inserted, which was removed at the end of 8 days, and a permanent catheter then introduced. Potency was retained in many of the cases. Carcinoma of the prostate was encountered six times. For the cases with incomplete retention, with dilated bladders reaching to the umbilicus, and suffering from incontinence, immediate prostatectomy was performed without the preliminary gradual emptying of the bladder. These cases, which generally have a very high mortality, responded very well to this procedure; but 4 of a series of 17 patients died after the operation. To prevent hemorrhage into the bladder as a result of the sudden emptying, the bladder was packed with 7-8 meters of iodoform gauze, which remained in situ for 4 days.

**The Diagnostic Value of the Shadowgraph Catheter.**

L. E. Schmidt and H. L. Kretchmer (*Surg. Gym. and Obst.*, Feb., 1912) discuss the value of the shadowgraph catheter in diagnosing lesions of the kidneys and ureter, and in recognizing pelvic shadows of extra-urethral origin. In differentiating between a congenital and a dystopic kidney, the length and course of the ureter as demonstrated by the shadowgraph catheter is of value, the congenital variety having a shorter and straighter ureter. Abnormal mobility of the kidney may be shown by taking an X-ray with a catheter in situ before and after displacing the kidney.

The authors have found distention with silver salts more satisfactory than the shadowgraph catheter in demonstrating enlargements or other changes in the renal pelvis. The catheter offers corroborative evidence in diagnosing renal calculi.

**Clinical Observation from 203 Patients Operated on for Renal Tuberculosis.**

W. F. Braasch (*J. A. M. A.*, Feb. 10, 1912) reviews 203 cases of renal tuberculosis operated on at St Mary's Hospital, Rochester, Minn., and finds that 61 per cent. were males and 29 of the patients were over 40 years of age. Hematuria was present in 60 per cent. and as was found twice as often in the male as in the female. There was bladder irritability in 86 per cent., renal pain, either alone or with bladder irritability in 25 per cent. and hematuria in 6 per cent. of the cases, as primary symptoms. Renal tumor was palpable in only 20 per cent. of the cases.

Braasch attributes the pathological conditions of tuberculous kidney and ureter, to the number and character of strictures of the ureter which may be present. If the first stricture is near the bladder a varying dilatation of ureter and of the renal pelvis will result according to the degree of the constriction. If the ureter becomes closed early, a large pyonephritis may result; if late, only a caseated remnant of the kidney may remain. If the constriction is so great as to prevent descending infection of the bladder, the ensuing process may be called "auto-nephrectomy." In such cases the bladder may recover entirely, though there is usually some sporadic reinfection. In the above condition the bladder symptoms are often obscured and the absence of pus or tubercle bacilli in the urine may be misleading. The cystoscope will often reveal areas of ulceration in the bladder wall and the radiograph may be of corroborative value in the diagnosis since calcium deposits in the caseated areas give distinct shadows.

While the urine is usually acid and only tubercle bacilli are present, secondary infection may occur and is often attended with a decrease in bladder irritability. The tuberculous nature of the case may be obscured by the secondary inflammatory process.

The question of resistance is still an open one and spontaneous cures are doubtful. In the majority of cases the disease is progressive from the beginning; in more resistant patients there are intermissions for a while that finally give way to a progressive course.

Various observers have reported symptomatic cures in advanced cases. It is most probable that recurrences are to be expected in such cases and it must be remembered that a closed ureter give the picture of symptomatic cure.

The increased resistance of older adults is of interest. In most of the patients over 40 the symptoms were moderate and of several years standing.

Cases that could be regarded as examples of ascending infection constituted less than 5 per cent. of the total observed. In over 60 per cent. of the male cases evidences of the disease were found in the epididymis, testicle, vas deferens or prostate. The lungs were found affected in 6 per cent. and joint tuberculosis in 7, but bone lesions in only 3.

The differential diagnosis lies between pyelitis, calculus, single kidney and cold abscess.

Cystoscopy may be exceedingly difficult. Although the picture may be typical and confined to the side of the bladder corresponding to the diseased kidney, this does not obtain in the majority of cases. When the condition of the healthy kidney cannot be determined by cystoscopy, bilateral surgical exploration is necessary.

Of the cases diagnosed as bilateral tuberculosis the majority gave a history of evident infection dating back from 2 to 10 years. The course of the second infection may often be traced by the history of a comparatively recent exacerbation of bladder symptoms and pronounced general weakness occurring several years after the first infection.

Pulmonary infection is a frequent terminal complication of bilateral disease. In 3 cases the adrenal gland was involved in the tuberculous process. These cases presented symptoms due to the adrenal involvement.

Six of the 203 patients died in the hospital. Excluding very recent cases, subsequent histories of only 70 per cent. were obtained; of these 18 per cent. were reported dead. Of the 82 per cent. living, all but 13 per cent. reported improvement or recovery from their previous symptoms.

Braasch considers operative mortality a negligible factor in nephrectomy for renal tuberculosis and that a permanent cure may be expected in 75 per cent. of patients operated on. On the other hand, if otherwise treated, fully 90 per cent. must eventually succumb to the infection and in taking the small chance for such a cure



the risk of infecting the bladder or infection elsewhere is greatly increased.

#### Concerning Salvarsan Fever.

H. Hecht (*Med. Klinik*, March 10, 1912). According to Wechseltmann, the fever often noticed after the injection of salvarsan intravenously, is due to the presence of dead bacteria in the physiological saline solution, and to avoid this reaction he advises the use of freshly distilled water in the preparation of the saline solution. The author in a series of experiments concludes that there are three etiological factors in the causation of this fever, the most frequent being the use of unclean saline solution; second, the presence of large numbers of free endotoxins in the blood; and third, rather rare, however, is a specific toxic action of salvarsan in certain cases (a form of idiosyncrasy). To overcome the fever due to the presence of free endotoxins, generally seen in fresh cases of lues, Geunerichs advises the use of mercury preparatory to the salvarsan injection.

#### Prostate Hypertrophy and Vesical Calculus. The Differential Diagnosis of these Conditions.

P. Janssen (*Münch. Med. Woch.*, April 16, 1912). The two above mentioned conditions are often mistaken for one another; this is due to the fact that the subjective symptoms in both conditions are often identical, and that the finer diagnostic methods such as cystoscopy and X-ray examinations are not always at the disposal of the physician. The author reports two cases which were treated for prostatic hypertrophy: the one patient had a perineal prostatectomy performed with no relief of his symptoms; X-ray examination later disclosed two large vesical calculi. The other patient was about to have a Bottini operation performed, when a searcher was introduced and stones detected. The stone searcher can only be of value when large stones are present; small stones or those lodging in diverticulae or in deep prostatic pouches are often missed by this method. Cystoscopy at times cannot be carried out, a tortuous urethra with a large prostate may prevent the introduction of the instrument, and then again when introduced the field may be obscured by blood, pus and mucus. Radiographic examination is of great value, and when negative makes the diagnosis of hypertrophied prostate most likely. Palpatory findings are of no value, for lateral lobe enlargement is encountered often in old people without giving rise to symptoms. We should first absolutely exclude stone before considering the case to be due to hypertrophy. Stone is often found associated with prostatic hypertrophy; most often the stones are secondary and form in the deep prostatic pouches or diverticulae.

#### Rare Foreign Bodies in the Urethra.

George Berg (*Mediz. Klinik*, Jan. 21, 1912) reports two cases of

foreign bodies in the urethra. The first patient, a young man gave a history of having inserted two medium-sized buttons into his urethra. He found it impossible to remove them, and soon after complained of pain and bloody urination. The buttons could be palpated in the urethra at the peno-scrotal junction and endoscopy showed them to be firmly imbedded in edematous musus membrane, about 10 cm. from the meatus. As attempts at removal proved unsuccessful, the urethra was opened at the peno-scrotal junction. As the buttons were about to be seized and removed, the assistant's fingers, while fixating them, slipped and forced the buttons back to the bulbous region. Another incision was then made in this region, the buttons were removed, and the wound partly sewed. Both wounds closed, although four months later, there was still a small sinus at the peno-scrotal wound. The buttons were, no doubt, introduced into the urethra for onanistic purposes; friction of the hand and consequent erection forced them back to the peno-scrotal region where they became firmly embedded.

The second case was that of a young man who, on account of itching, introduced a hair-pin into his urethra, with the two free ends pointing towards the meatus. The pin slipped from his grasp and became imbedded in the urethra, from which it was successfully removed through an endoscope.

#### **Toxicity of Salvarsan, Intravenously Administered.**

Martin Kochmann (*Munch. Med. Woch.*, Jan. 2, 1912) found that 50 mg. caused albuminuria in rabbits, 70 mg. caused both albuminuria and glycosuria, 100 mg. caused death. The autopsy showed brown spots in the gastric mucosa, the discoloration being due to methemaglobin; 200 mg. caused immediate death without time for structural changes to take place. Thirty-five mg. of pure arsenic administered in the combination known as salvarsan are lethal to rabbits. In dogs it is vastly more toxic, as one-seventh of this quantity kills.

#### **Experimental Investigations as to the Neurotoxic Influence of Salvarsan.**

Karl Beck (*Munch. Med. Woch.*, Jan. 2, 1912), in order to throw light upon this important matter administered 0.003 grams of salvarsan to white mice of 20 grams weight, equalling a dose of 9 grams for the average human being. After four months the mice were beheaded, the heads fixed, decalcified, stained in osmic acid, embedded in celloidin and cut in serial sections. No changes were found anywhere in the course of any of the cranial nerves or their nuclei.

#### **Local Salvarsan Treatment of Spirillosis of the Buccal Orifice.**

Julian Zilz (*Munch. Med. Woch.*, Jan. 2, 1912) states that 10% suspensions of salvarsan in oil, or 10% solutions in water and glycerin were used as a paint on the buccal lesion. Specific diseases in places inaccessible to the blood current, non specific diseases such as alveolar

periostitis with positive Wassermann, necrosis of the pulp, were all cured in this way. The osteitis of the lower jaw due to spirochaeta dentium was cured in three days by the salvarsan injection.

#### **The Influence of Bacteria Upon the Toxicity of Salvarsan.**

W. L. Yankinoff and Nina Kohl-Yakinoff (*Munch. Med. Woch.*, Jan. 16, 1912) noted in earlier investigations that the toxicity of salvarsan was greatly increased by injecting the latter with the endotoxins of *B. coli* into animals suffering with trepanomiasis. In order to elucidate this point they made similar injections upon similarly diseased animals with the endotoxins of the nonpathogenic *B. pyocyaneus*, staphylococcus aureus, pneumobacillus of Freidlander, *B. subtilis* and *B. terrigenus*. The animals experimented upon were white mice. The dose of salvarsan was in the strength of 1-400 to 1-1,000. It was noted that the toxic effect of the injection varied directly with the severity of the sickness caused by the trepanomata. This experimentally bears out Wechselmann's contention for the need of freshly distilled and freshly sterilized water in the administration of "606."

#### **Fatal Hemiplegia After Salvarsan for Spinal Cord Gumma.**

August Hofmann (*Munch. Med. Woch.*, Jan. 23, 1912) cites a case giving a clinical picture of gumma of the spinal cord that received 0.6 of salvarsan intravenous on the third of March, 1911. On the first day fever, chills and perspiration set in. The next day the patient had a left facial palsy and left hemiplegia, unconsciousness, followed by coma, and herpes of the lips finally developed. On the fourth day the patient died. At autopsy softening of the right internal capsule was found with sclerosis of the basilar artery and branches. The brain was edematous and a gumma 3 cm. long was found in the mid-dorsal region. This case involved the question as to whether the salvarsan itself or its influence upon the nervous syphilitic lesions caused the fatal issue.

#### **Remote Thrombosis After Intravenous Injection of Salvarsan.**

E. Klausner (*Munch. Med. Woch.*, Feb. 6, 1912) noted that seventeen days after having administered an intravenous injection to a patient suffering with a syphilis of twenty-three years duration, there developed fever and severe pain in the right thigh. The site of the injection in the right arm was normal. The symptoms and signs were those of thrombosis in the right thigh. Suppuration set in. No examination of the pus was made as the patient desired to suppress the nature of his illness.

#### **Abortive Treatment of Lues by Salvarsan.**

Karl Stern (*Munch. Med. Woch.*, Feb. 23, 1912) says that fourteen cases were observed by Dr. Stern all of whom received several intravenous injections of "606," or intravenous combined with intra-

muscular injections, repeated at very short intervals. They were fully controlled serologically. In five cases luetic symptoms and a positive Wassermann reaction reappeared within six months. In eight cases none reappeared after a longer interval, in three of which the observations were extended over more than a year. From this the conclusion is justifiable that although salvarsan may abort syphilis, a six months test is not long enough to determine this very important question.

**An Apparatus for the Intravenous Injection of Salvarsan, with Salt Solution Preceding and Following.**

W. B. Dakin (*J. A. M. A.*, Jan. 13, 1912). The apparatus is accurate but complicated, and although ingenious, presents no practical advantages over similar but simpler instruments.

**Salvarsan in Pernicious Anemia.**

Alfred Friedlander (*J. A. M. A.* Feb. 10, 1912) cites a brief case report, in which two intramuscular injections of the oily suspension of salvarsan, at a week's interval caused a striking numerical increase in the erythrocytes. Within two and a half months they increased from 887,000 to 3,200,000 with a general improvement of the patient. During this period the hemoglobin rose from 20 to 52 per cent.

**Focal Fatty Degeneration of the Myocardium Associated with Localized Colonies of Spirochaeta Pallida.**

A. S. Warthin (*J. A. M. A.*, Feb. 10, 1912) has found in every case of congenital cardiac lues that he has studied, focal or diffuse areas of fatty degeneration. They occur independent of vascular changes, but often about colonies of spirochaeta in the cardiac muscle. Kresyl-echt-violet gives the mucin reaction in these areas. The process is essentially parenchymatous, but calcification or fibrosis may ensue.

**The Present Status of Salvarsan Therapy in Syphilis.**

Henry J. Nichols (*J. A. M. A.*, Mar. 2, 1912) of the United States Army, reviews 143 cases of lues to whom 181 salvarsan injections had been administered. There was full control by the serum test. The intravenous method afforded the most gratifying results. The other methods of administration were less efficacious and mechanically inferior. Repeated injections, particularly in early cases gave excellent therapeutic results. The tenets for the combined treatment with salvarsan and mercury are somewhat arbitrary for so small a series of cases, but the point that salvarsan in conjunction with mercury forms a potent weapon against lues is clearly developed.

**Subcutaneous Injection of Salvarsan in General Paresis.**

E. H. Trambridge (*J. A. M. A.*, Mar. 2, 1912). This method of treatment is found to have no definite beneficial influence upon the disease.

**Clinical Aspects of Syphilis of the Liver.**

V. L. Schragar (*J. A. M. A.*, Mar. 9, 1912) gives an excellent brief review of this subject indicating that the disease is more common than is usually imagined. A discussion of the pathology and a short outline of the clinical conditions that hepatic lues simulates, notably simple cholecystitis, carcinoma, liver abscess, cirrhosis and other conditions less difficult to differentiate. Dr. Schragar found mixed treatment the best. A case report follows.

**Localization of the Spirochaeta Pallida in the Heart Muscle in Congenital Syphilis in Absence of Histological Lesions or Spirochaeta Elsewhere in the Body.**

A. S. Warthin and E. J. Snyder (*J. A. M. A.*, Mar. 9, 1912). This article consists of a report of two cases of congenital syphilis in infants. In the first instance all organs were examined, but neither macroscopically nor microscopically were evidences of lues obtained. By the method of Levaditi spirochaeta were found in the myocardium without any morphological specific change in the tissue. In the second case spirochaeta were found, by the ultra microscope, in the hepatic blood. In the myocardium they were present as well, but here in the midst of small gelatinous areas not looking specific histologically, but giving the mucin reaction with Kresyl-echt-violet. The other organs were negative. The heart muscle thus seems to be a favorite site in which spirochaeta situate themselves early in the disease.

**The Spirochaeta and Spirillosis of the Upper Air and Digestive Passages.**

Prof. Gerber (*Virchow's Archiv.*, Jan. 6, 1912) points out that the discovery of the spirochaeta pallida found us unprepared for comprehending the relation of this group of organisms to disease. At first we assumed that only spirochaeta pallida were pathogenic although we knew that there were other similar organisms which we were inclined to regard merely as saprophytes. Then as Plaut-Vincent found this type of organism in the lesions of ulcero membranous angina it became clear that diseases other than lues could be caused by them. Gerber describes six varieties of these organisms in the buccal orifice, but mentions that Commandons has differentiated eight. An important fact is that smears from the same source differ when examined ultra microscopically, with India ink, and when stained. In one instance in which a smear from a Vincent angina lesion was literally crowded with spirilla under the ultra microscope, a similar smear from the same lesion stained with methylgreen pyronin showed no spirochaeta, but an apparently pure culture of fusiform bacilli.

Thus he concludes that these organisms, although one and the same, appear different when examined under differing conditions.

In the adult mouth all varieties exist; in the healthy child's mouth there are none. He points out that spirochaeta occur in pyorrhea,

ulcero membranous angina and in the stomatitis present in scurvy. In obstinate cases of these diseases he has seen cures effected by salvarsan. He does not assert that scurvy is caused by spirochaeta but does not deny the possibility of this.

#### Rectal Administration of Salvarsan.

Dr. S. L. Bagrow (*Berl. Klin. Wochenschr.*, Jan. 15, 1912) suggests the use of salvarsan suppositories in syphilitics with weak hearts or tuberculosis. The effect of the drug is not so good as when administered intravenously, but it may be used in cases in which the possible ill-effects of the drug, when administered directly into the circulation, are to be avoided.

#### The Successful Inoculation of a Rabbit's Testis with Blood, Serum, and Spermatic Fluid from a Syphilitic.

Uhlenhuth and Mulzer (*Berl. Klin. Wochenschr.*, Jan. 22, 1912). The entire purport of this article is indicated in the title. A typical specific orchitis developed.

#### Salvarsan in Fever.

Dr. Stuempke (*Deutsch. Med. Wochenschr.*, Jan. 25, 1912). This is a corroboration of the facts discovered by Dr. Wechselmann concerning the use of freshly distilled water in administering "606."

#### The Modification of the Course of Syphilis After Intensive Therapy.

Franz von Veress (*Dermatologische Wochenschrift*, Jan. 6th and Jan. 13th, 1912). Dr. Veress points out the revolution in syphilis therapy caused by the introduction of salvarsan and emphasizes the prompt effect and rapid cures obtained by the combination of Ehrlich Hata with mercury. It is generally conceded that early energetic treatment in the sense of Fournier and Neisser is most advisable. Still certain authors have noted that under these circumstances during the latent period between the primary and secondary stages, the normal course of the disease is modified disadvantageously and there appears an isolated lesion termed by Thalmann the solitary secondary syphilide; by Bettmann, an early recurrence. In Thalmann's experience this lesion in all respects resembles a chancre. His observations antedate the use of salvarsan, when energetic treatment was carried out with mercury. Bettmann's observations were made after the early use of salvarsan. Friboes published four such cases. Finger, Schriber and others regard these as instances of reinfection; Gaucher, Lesser and Tomaszewski, as pseudo chancre. There are thus three possibilities. The phenomenon denotes either a pseudo-reinfection, a super-reinfection or one grafted upon an uncured early lues, or finally an actual reinfection following rapidly upon an early lues in a patient whose so-called immunity is lost by a rapid cure, and who is thus liable

to infection in the same manner as an individual who had never been luetic.

Veress then appends a case describing the re-appearance of a primary lesion six months after the first, following most energetic therapy. This seemed to be an early isolated secondary lesion resembling a sclerosis.

#### **The Intradermal Reaction and its Bearing upon the Diagnosis of Lues.**

Arthur Fontana (*Dermatologische Wochenschrift*, Jan. 27, 1912). A review by Fontana of the early investigations along these lines opens this paper. He recalls Tedeschi's experiments with watery extracts of chancres, Ciuffo's with broth, glycerin extracts of liver, spleen and glands of congenital luetics, Nicolas and Favre's with glycerin extracts of luetic liver as substances to evoke percutaneous luetic reactions. Fontana employed all of these, using as syphiline a glycerin extract of spirochete from mucous papules, also a 10% solution glycolate as well as lecithin and extract of guinea-pig's heart. In luetic patients the use of syphiline evoked 58% positive results. Reinfection and Single Secondary Syphilide After Salvarsan.

Dr. Hanacek (*Dermatologische Wochenschrift*, Feb. 17th, 1912). Dr Hanacek reports two cases belonging to the group originally emphasized by Thalmann and Bettmann. The same problems are presented as in Veress's papers. Dr. Hanacek believes that the question of pathogenicity can not be settled.

#### **The Question of Reinfection in Syphilis.**

Prof. Bettmann (*Dermatologische Wochenschrift*, Feb. 24th, 1912). Prof. Bettmann hopes that his earlier papers upon the subject be not misconstrued. He states that although many early solitary recurrences of the chancre can not be regarded as reinfections, some may be; and too general an interpretation of his views against this possibility, he does not wish. He concedes the great difficulties of the question, and describes a case of recurrence within a year. Thorough analysis of this case pointed to a reinfection.

#### **The Abortive Treatment of Primary Syphilis.**

Dr. Voss (*Muenchener medizinische Wochenschrift*, March 5, 1912). This article is illustrated by cases, and points to the conclusion that fresh syphilis may be aborted by destruction of the chancre either with the knife, cautery or Holländer apparatus followed by the administration of mercury intramuscularly, or this combined with salvarsan, but not by salvarsan alone.

#### **Temporary Fistulization in Operations Upon the Urethra.**

Marion (*La Presse Médicale*, Feb. 14, 1912, p. 140) believes that the establishment of a temporary fistula to prevent the urine from washing over the urethral field of operation, is indicated in a large

number of cases. He employs this principally in cases of repair of the urethra after rupture, where an end to end suture of the urethra is done; also in operations for hypospadias, and in closing urethro-perineal fistulae. The author believes that perineal drainage is better than suprapubic, and that cystotomy should be reserved for the cases in which the bulb is operated upon.

#### The Value of the Wassermann Reaction in Hereditary Syphilis.

*E. Andronesco and F. Saratzeano (La Presse Médicale, April 3, 1912)*, examined a series of mothers, in order to test the value of the Wassermann reaction in hereditary syphilis. Their conclusions are the following: First, the law of Colles holds good. Second, the mothers of syphilitic infants give the same reaction to the Wassermann test as cases of syphilis in the stage of full development. Third, pluriparity does not seem to have any influence upon the reaction. Fourth, the Wassermann reaction is positive in hereditary syphilis, even when there are no manifestations. It is therefore a certain and necessary method of diagnosis. Fifth, the reaction is more intense in the hereditary specific infants than in the mothers.

#### Sagittal Reduplication of the Female Urethra.

*Ida Grubenmann (Frankfurt. Zeitschr. f. Pathol., vol. X, 1912, p. 101)*, reports the case of a child 3 years old who presented, at autopsy, two completely separate urethrae, the posterior of which emptied into the urogenital sinus, the anterior coursing through an hypertrophied clitoris. It is assumed that the duplication is the result of abnormal adhesion of the walls of the canal and is not the product of a double *Anlage*. Although the penetration of the clitoris by the urethra suggests hermaphroditism, the absence of testicular tissue, and the histological studies speak strongly against such a condition. The literature contains but one other case, which, although imperfectly described, may possibly be a counterpart of the one here recorded.

#### The Destruction of Glomeruli in Hydronephrosis.

*E. F. Zurhelle (Frankfurt. Zeitschr. f. Pathol., vol. X, No. 1, p. 42)*, concludes from his observations on 9 cases, and from the study of the literature, that in marked hydronephrotic kidneys, the glomeruli undergo a distinctly degenerative change. Bowman's capsule swells, the glomerular space enlarges and an exudate is thrown out into it. Later, the capsule thickens, and the glomerulus is replaced either by a fibrous tissue core or a hyaline mass. In the most marked cases, there is also a complete disappearance of parenchyma and a fibrous tissue replacement.

#### Concerning Arthigton Treatment of Gonorrhea.

*J. Simon (Münch. Med. Woch., March 5, 1912)*, in common with



most authors, concludes that vaccines exert no beneficial effect in uncomplicated urethral gonorrhea. Epididymitis responds very favorably to vaccines, the severe pain disappearing completely after a few injections, and the swelling diminishing considerably. Those cases reacting with high temperature show most marked improvement; at the end of 10-12 days practically all swelling disappears.

The author's cases of epididymitis, that had received vaccine therapy, were cured without leaving palpable nodules in the epididymis—in marked contrast to the results obtained with other methods of treatment. Prostatitis responded less favorably; of two cases of arthritis, one was cured by vaccines and the other was practically uninfluenced.

Vaccines can only be of aid in the diagnosis of suspected gonorrheal cases, if, after the injection of 1.0 Arthigon, the temperature rises 1° C. or more. Local reactions at the site of injection are of no value as a diagnostic measure; reactions in diseased organs are seldom seen. Arthigon is administered intramuscularly every 2nd to 3rd day with an initial dose of 0.5 c.c. which is increased to 2 c.c.

**Indications for Operative Treatment of Prostatic Hypertrophy.**

*P. Janssen*, (*Mediz. Klinik.*, March 3, 1912), calls attention to the fact that because of the enthusiasm aroused by the success of prostatectomy, many of the older conservative methods of treatment have been abandoned, with the result that many cases are operated and lost that could be saved by other means. Not every case of prostatic hypertrophy should be operated upon. There are distinct indications for and against the operation. In the first stage of enlargement, giving rise to frequency and slight difficulty of urination, dietetic and hydro-therapeutic measures are very beneficial in relieving the condition. It would be unwise to operate at this time. Endovesical or urethral instrumentation is also contraindicated. In more advanced cases, where acute retention or chronic incomplete retention exists, instrumentation must be resorted to. In cases of acute retention regular catheterization two to three times a day with good general treatment may, so reduce the size of the gland as to make the patient comfortable. Where chronic retention exists, X-ray therapy should be tried before resorting to operation. If this is unsuccessful, operation should be advised, unless contraindicated by marked general debility, or advanced pulmonary, cardiac or renal disease.

In severe forms of cystitis with septic urine, prostatectomy is contraindicated, also in large atonic bladders where there is no hope of the musculature regaining its tone. A large prostate per rectum is, in itself, no indication for operation, unless it gives rise to the symptoms above enumerated. Small median growths give rise to marked symptoms and usually require radical treatment. For those

cases in which prostatectomy is contraindicated, a cystostomy after the method of Witzel, is the most satisfactory procedure. At times, after cystostomy, local conditions improve to such an extent that prostatectomy can be carried out at a later date.

#### Renal Calculi in Children.

O. Ebert (*Med. Klinik.*, March 10, 1912), reports a case of renal calculus in a boy 6 years of age, who for some weeks had suffered from pyelitis supposedly due to colon bacilli. Attacks of renal colic with fever and vomiting occurred almost monthly. A pyelolithotomy was performed, and a stone composed mainly of oxalates with traces of urates was removed from the pelvis of the kidney. Numerous theories have been advanced in explanation of the occurrence of calculi in children. Uric acid infarcts in infancy are frequently encountered, and are supposed to act as a predisposing factor. The condition seems to be endemic in certain localities, as in Hungary and Turkey. Heredity, diet, and water rich in calcium, have also been mentioned as being important in etiology. Males are more often affected, and the condition is most frequently seen before the seventh year. The stones are apt to be of the uric acid variety, although they are often coated with a layer of oxalate of lime.

#### The Treatment of Condylomata Acuminata.

D. Watson (*The Lancet*, April 13, 1912), recommends the following treatment. In the male circumcision is performed when necessary. Pedunculated warts are removed with scissors, and after bleeding has been controlled pure lactic acid is applied to the base. The non-pedunculated growths are treated with a continuous wet dressing of 1% lactic acid on lint. The base of these growths may in addition be touched at intervals of a few days with pure acid. Dressings are changed according to the amount of discharge. Cure results without cicatrix formation and without pain. The seats of gonorrheal infection should receive appropriate treatment.

#### Malignant Disease of the Testicle and Removal of the Ilio-Lumbar Lymph Glands.

Sir Henry Morris (*The Lancet*, March 9, 1912), reports two very interesting cases of carcinoma of the testis, and calls attention to the fact that they are often of a low grade of malignancy. The first case presented an extensive retroperitoneal tumor some two years after removal of the testis for carcinoma. Nine years later, the patient succumbed with a metastatic growth of the spine. The second patient operated on 12 years previously for a chondrocarcinoma of the testicle, still remains without any obvious signs of recurrence. These cases are exceptional, however. The improved operation which consists of the removal of the cord and ilio-lumbar lymph glands, may in time increase the percentage of such exceptional cases.

**Cystitis, its Causes and Treatment.**

D. Newman (*The Lancet*, Feb. 24, and March 2, 1912). In women infection by the ascending route is most frequent, in men the hematogenous and transperietal routes are apt to obtain. The organisms which invade the bladder may be divided into two classes: those inducing urinary decomposition, and those which do not. In the latter group, the most frequently encountered are the colon and tubercle bacilli, the streptococcus pyogenes and the pneumococcus. Of the urea decomposing organisms the staphylococcus aureus and albus occur most frequently. Whether the gonococcus in pure culture can cause cystitis is still disputed. The author classifies cystitis into mild, severe and chronic forms. The cystoscopic picture varies in the different types of cystitis. In the mild colon bacillus infections, congestion about the neck of the bladder and trigone generally constitutes the only discoverable lesion. In gonococcus cystitis the mucous membrane is deeply congested and swollen, and small submucous hemorrhages may be seen. Pneumococcal cystitis, which is always secondary to that of the kidney, shows inflammatory changes around the ureters and in the trigone. Streptococcus cystitis shows marked involvement of the entire bladder. Tuberculous cystitis presents varied appearances at different stages, but is chiefly characterized by pathological changes around the ureteral orifices. Some of the various complications of cystitis are diverticulum formation and trabeculation of the bladder, atony, pericystitis and renal infections. As regards therapy, vaccines, preferably autogenous, should be tried in both the acute and chronic cases. In addition, the usual internal and local measures should be used. For tuberculous cystitis, mercury, carbolic acid and guaiacol are highly recommended. When the cystitis is due to urea-decomposing organisms, instillations of pure lactic bacillus cultures in milk or whey may be employed with great advantage.

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## THE DIAGNOSIS OF DISEASES OF THE URINARY TRACT BY THE COMBINED USE OF THE CYSTOSCOPE AND THE X-RAY.\*

E. M. STANTON, M.D., Schenectady, N. Y.

**I**N no other special field of surgery has there been more substantial progress in recent years than in the surgery of the urinary tract. This progress has been dependent upon the development of accurate methods of diagnosis, chiefly through the aid of the cystoscope, the ureteral catheter and the X-ray.

In hospitals where these diagnostic methods are used routinely in suspected cases, operations on the urinary tract constitute over four per cent. of the total operative work; and experience has shown that in order to clear up doubtful diagnoses in other abdominal conditions and to eliminate inoperable cases, at least four patients require cystoscopic examination for each one actually operated for a surgical lesion of the urinary tract. It is thus seen that cystoscopic and X-ray examinations of the urinary tract should constitute a routine step in the diagnosis of surgical patients whenever there are symptoms pointing to even a possible involvement of the urinary tract.

The data obtained by the cystoscope, the ureteral catheter and the X-ray is positive and cannot be contradicted by objective or subjective symptoms. With correct data such as may be obtained in practically every case, a diagnosis of lesions of the urinary tract can be made with more certainty than in any other organ of the body, but the problem of obtaining this data is by no means a simple one and unless each step of the examination be carried out with precision and almost mathematical accuracy the results are more than likely to be positively misleading. In this

\* Read before the Surgeons' Club of Schenectady, March 19, 1912.

respect the work is not unlike a problem in mathematics or quantitative chemistry where if each step is carried out accurately and in proper sequence the results are certain to be correct but if any error is made the results are equally certain to be wrong.

In our own experience, and in the observation of the work of others, it soon became evident that most of the mistakes were due to errors which were in kind almost exactly comparable to a faulty technic in quantitative chemical work. Furthermore it was evident that while the X-ray is an invaluable aid, it alone is not capable of giving sufficiently accurate data in a great majority of cases, including many calculus patients. The cystoscope and ureteral catheter are sufficient for diagnosis in a much larger proportion of patients, but they alone fail in many instances, especially in the accurate localization of ureteral obstructions, which constitute a most important factor in operable surgical lesions of the upper urinary tract. It is only when the X-ray, the cystoscope and the ureteral catheter are used in combination that an accurate diagnosis becomes possible in practically all cases, and the problem of diagnosis thus becomes largely one of combining the several diagnostic procedures in such a manner that the short-comings of one will be supplemented by the positive findings of the other.

In order to obtain the best results the cystoscopist and radiographer must work together and their combined technic should be so planned as to meet the following requirements:

1st. The examination must be practically painless and must not be unduly prolonged.

2nd. The completed examination must give an orderly collection of accurate data which together will constitute all of the facts necessary for an accurate diagnosis.

3rd. The various steps of the examination must be so planned that one step does not interfere with another, else repeated examinations will be necessary.<sup>1</sup>

4th. Any plan adopted must be capable of modification to suit individual cases without breaking the technic as a whole.

The following is a brief outline of the technic which has been evolved by my assistant, Dr. Mason, and myself for the com-

<sup>1</sup> While in hospital cases repeated examinations are possible they take up an unnecessary amount of time on the part of the examiner, and it is a fact proven by practical experience that private cases seen in consultation will not willingly submit to a series of incomplete examinations so that it is highly desirable to complete the entire examination in one period.

bined X-ray and cystoscopic examination of the urinary tract. Except in the cases of bedridden hospital patients the examinations are all made at the office in a room especially fitted for this purpose.

The individual steps are none of them original with us, the problem which we have had to solve being one of selecting the most useful procedures and combining them in such a way as to enable the completed examination to result in an accurate diagnosis obtained with the least possible inconveniences to the patient. As a matter of fact most of the examinations themselves are completed within thirty minutes, with no more inconvenience to the patient than the ordinary passing of a sound.

#### PRELIMINARY PREPARATION

It is desirable to have the bowels thoroughly evacuated by two ounces of castor oil given the day before the examination, but when the X-ray findings are checked by the cystoscope this preliminary evacuation of the bowels is not absolutely essential.

#### HISTORY AND PHYSICAL EXAMINATIONS

As a first step in the examination, a complete history is taken and an ordinary physical examination made with as much care as if no other data were to be available in the case. A blood pressure determination should be a routine part of this examination and in some cases a blood count is of value. In the male a bimanual rectal examination is as important as the usual pelvic examination in the female.

#### PRELIMINARY URINE EXAMINATION

The examination of the fresh bladder urine, both chemical and microscopic, should be completed before beginning the cystoscopic examination. In the male this should be obtained as for a three-glass test, while in the female it should usually be a catheterized specimen obtained by the nurse when preparing the patient for the physical examination.

#### PRELIMINARY FUNCTIONAL DETERMINATION

In a few cases, notably those with enlarged prostates and patients in whom an extensive destruction of one kidney is suspected, it is well to make a preliminary determination of the combined functional activity of both kidneys by the phenolsulphonaphthalein test before the cystoscopic examination. By so doing the functional determination made at the time of the cystoscopic

examination need only be an estimation as to the relative activity of the individual kidneys. This preliminary functional determination necessitates postponing the cystoscopic examination for 24 hours, but as the test itself is easily arranged so as to cause practically no inconvenience to the patient, the advantages gained are well worth the time consumed.

#### X-RAY AND CYSTOSCOPIC EXAMINATION

The cystoscopy must be done on a table suitable for X-ray work and the X-ray machine so located that the pictures can be taken without moving the patient or interfering with the cystoscopic examination. (See Figure 1.)

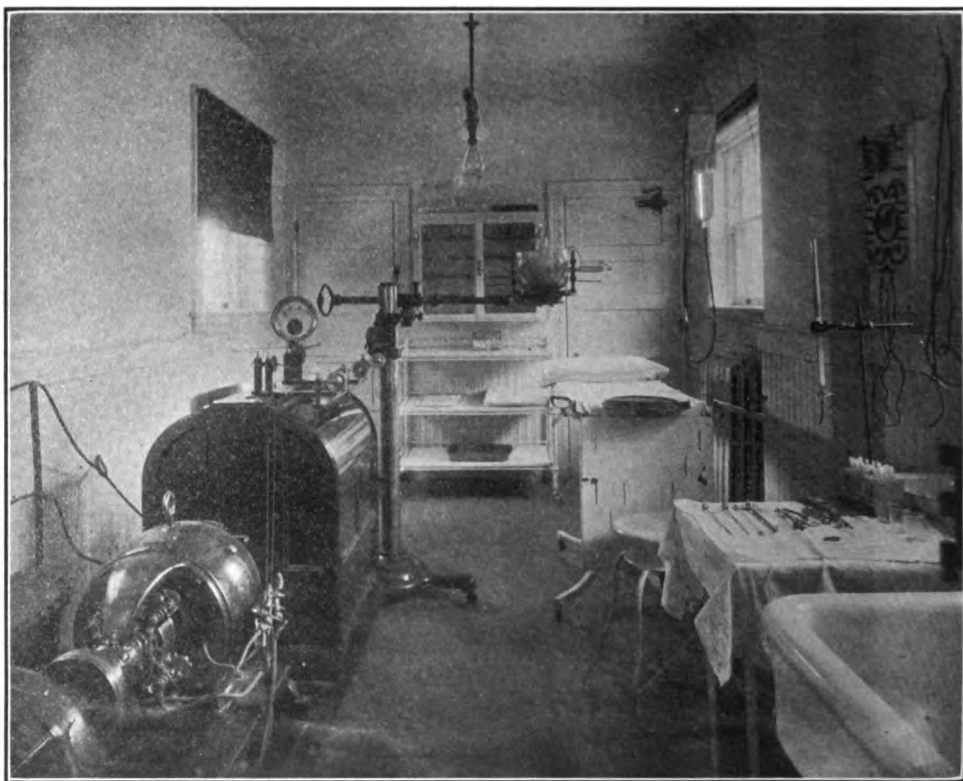


Fig. 1. Diagnostic room fitted up for combined use of cystoscope and X-ray. On the right, test tube rack with sterile 5 c.c. tubes for collecting urine from ureteral catheters; also burette for injecting collargol solution.

With proper anesthetization of the urethra the cystoscopic work is practically painless. The writer uses 4 per cent. cocaine

in the female and alypin inserted with a Bransford Lewis depositor in the male.

In cases with very irritable bladder (tuberculosis) nitrous oxide and oxygen given by the Gatch method is very satisfactory for either a short or long anesthesia and can be given as an office anesthetic the same as in dental work

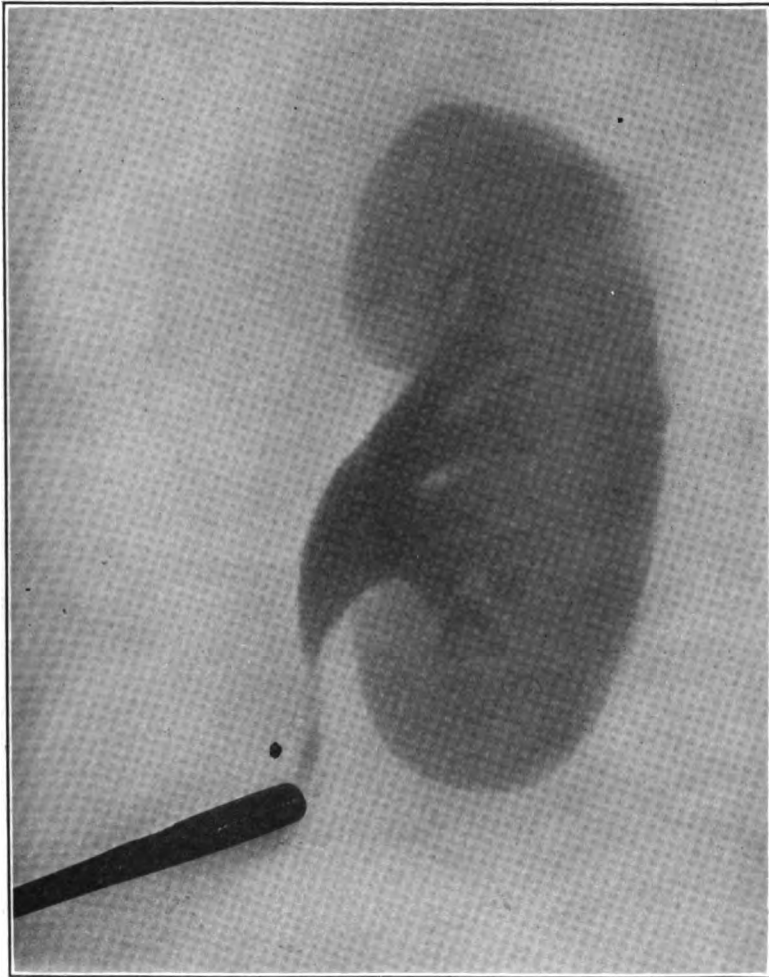


Fig. 2. Normal renal pelvis filled with collargol solution.

Whenever a lesion of the upper urinary tract is suspected a radiograph, including the region of both kidneys and ureters on



a single plate, is taken as soon as the patient is on the examining table. This plate is developed at once and is ready for examination by the time the urethra is anesthetized and we are ready to proceed with the ureteral exploration. This plate settles at once the question of stone shadows<sup>2</sup> in both kidneys and ureters, and even in the absence of stone other shadows are sometimes of value, and at all times the plate is of value for comparison if collargol injections are made.

The Bransford Lewis depositor which is used in anesthetizing the male urethra serves at the same time as a means of exploring the urethra for stricture or prostatic obstruction.

Any good double catheterizing cystoscope will serve for the cystoscopic work, the essential thing being perfect familiarity with the instrument used. In about 95 per cent. of our work I use the simple endoscope of the Elsner-Draasch type in preference to the more complicated telescopic cystoscopes. This instrument can be used with equal facility in either male or female, gives a view free from distortion, allows of ureteral catheterization with only a few drams of fluid in the bladder, is not interfered with by hemorrhage and serves admirably as a urethroscope for both the prostatic and anterior urethra.

Proceeding to the examination of the bladder itself, one is able to diagnose positively the presence or absence of cystitis and its severity, new growths, stones within the viscus, diverticulæ within its walls, the presence of trabeculation due to urethral obstruction or spinal-cord lesions, the condition of the prostate in relation to the bladder and its size, also the condition of the urethral openings, and the gross character of the urine coming from either kidney. This bladder examination takes but a minute or two at most, and unless the diagnosis is completed with the bladder examination we proceed at once to the ureteral catheterization after noting carefully the condition of each ureteral orifice.<sup>3</sup>

In passing the ureteral catheters particular attention is paid to any obstructions or resistance which may be encountered and

<sup>2</sup> In very obese patients in whom the presence of a stone is strongly suspected and the X-ray fails to show a shadow the wax-tipped ureteral catheters of Kelly may be used as a further means of exploring for stone.

<sup>3</sup> Tuberculosis is nearly always recognizable by the condition of the ureteral orifice and most of the other lesions of the kidney and ureter are accompanied by fairly characteristic changes in the ureteral orifice on the affected side.

if present the distance of the same from the bladder is at once recorded and if passed by the catheter any continued resistance or grating is noted. After passing the obstruction the flow of

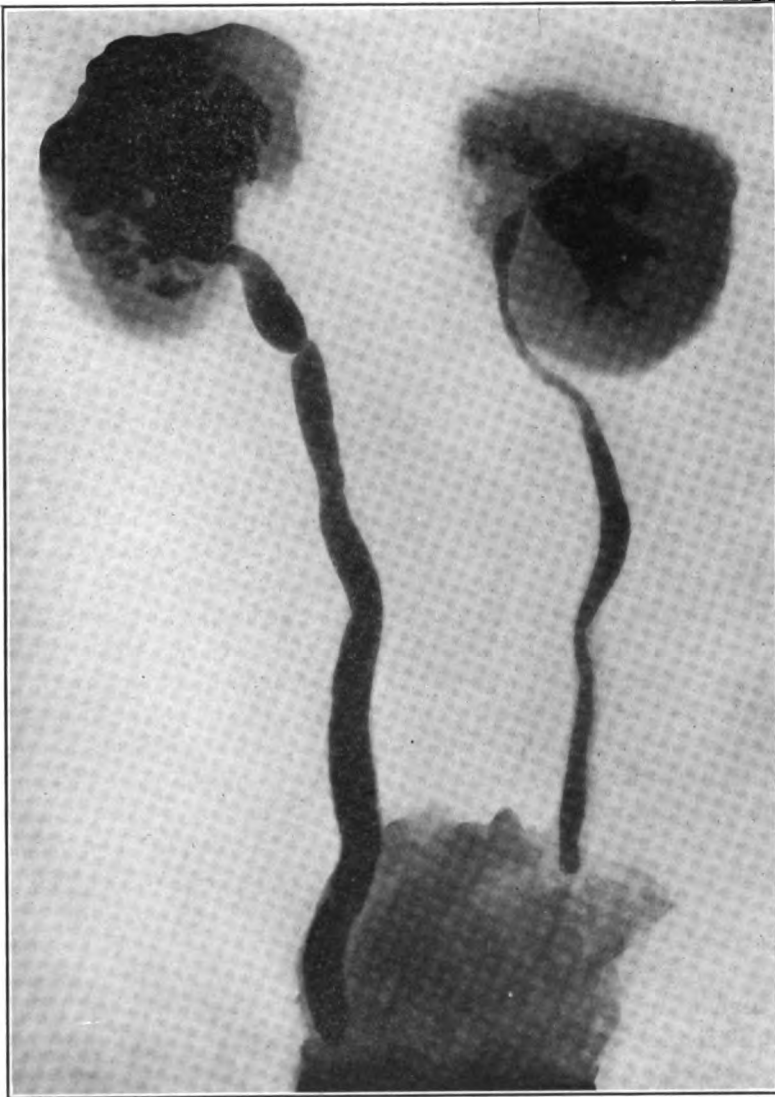


Fig. 3. Double pyelonephrosis secondary to enlarged prostate. Col-largol injection shows irregular outline of pelvis due to hydronephrosis and suppurative destruction of kidney substance.

urine from the catheter is noted with special care, because if a hydronephrosis is present above the obstruction it will be indicated by a continuous flow of urine, and the amount of the residual urine drained from above the stricture is of value in estimating the degree of hydronephrosis. In our experience some resistance is encountered in passing the ureteral catheter in about one-quarter of the ureters catheterized but true obstructions are by no means as frequent, and it not infrequently happens that a true obstruction to the downward flow of urine is passed from below by the ureteral catheter with scarcely palpable resistance. If the apparent obstruction is of no importance surgically, a normal intermittent flow of urine from the catheter will be noted at once, while if there is a true obstruction the flow of urine will be continuous until the hydronephrotic sac is drained.

As we have never seen any ill effects either immediate or remote from ureteral catheterization, we make it a rule to catheterize both ureters in nearly all cases, and usually the catheters are passed to the pelvis of the kidney (27 to 30 c. m.) unless an impassable obstruction is encountered lower down.

Immediately after the catheters are inserted the collection of the urine from the separate kidneys is begun and continued until a sufficient quantity is collected. In collecting the urine in this way the writer has found the rack (shown in Fig. 1) containing a series of sterile test tubes of 5 c.c. capacity of great service. In this way the rate of flow can be accurately estimated, there is no danger of the patients upsetting the specimen, the end of the catheter is easily retained in the test tube by the aid of the cotton stopper while the urine is collected under aseptic conditions. It may be centrifuged in the original tubes without loss or contamination and if desired the phenolsulphonephthalein functional test of the separate kidneys may be carried out without in any way interfering with the other urine tests, by simply transferring the catheters from one tube to another at stated intervals.

By a microscopic examination of the urine obtained through the catheter, we are able to diagnose pyelitis, double or single, hemorrhage from the kidney, and the presence of nephritis, and by staining or culturing the sediment we are able to isolate the micro-organisms, if any be present.

Information concerning the function of the kidney is obtained (1) by collecting enough urine from either side so that the specific gravity can be taken, (2) by observing the amount of urine passed

in a given time or in comparison with the other kidney, (3) by the amount of time necessary for a previously injected substance to be secreted by the kidney and the time of its appearance in the urine.



Fig. 4. Ureteral obstruction (stone) at X with hydro-ureter and hydro-nephrosis above obstruction. Same patient as Plate V.

After a sufficient amount of urine has been collected from the diseased or suspected kidney we are ready to determine the position and outline of its pelvis and ureter by pyelography,

without interfering with the collection of urine from the opposite kidney.

If the X-ray plate taken at the beginning of the examination shows any evidence of renal or ureteral calculus or if any evidence of a hydronephrosis, either simple or infected, has been discovered or a tumor is suspected or we desire to ascertain the exact position of the kidney, the pelvis on the affected side is

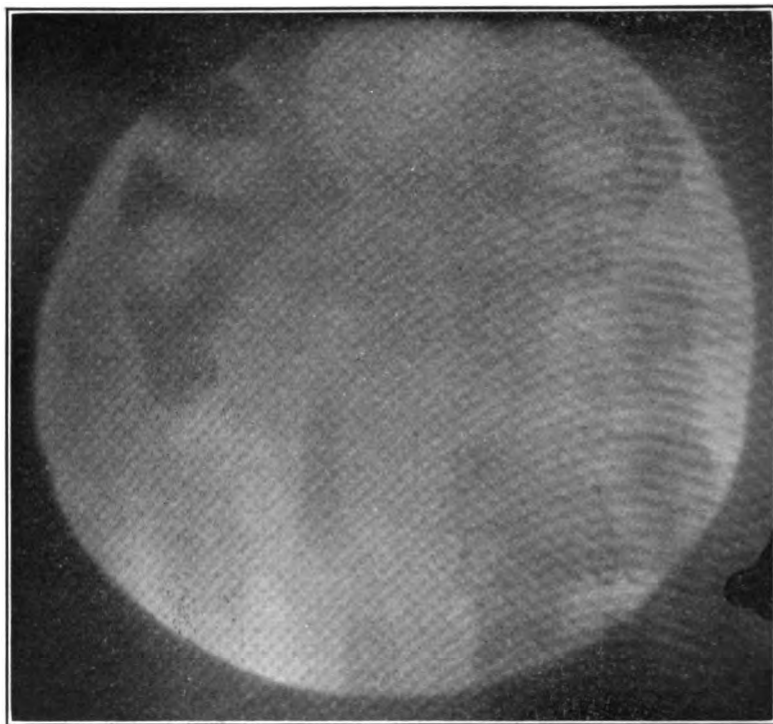


Fig. 5. Stone in pelvis of kidney producing moderate hydronephrosis.

now filled with a 10% solution of collargol and an additional radiograph taken, to show the outline of the pelvis and ureter filled with the collargol solution. In our experience we have found the data obtained by pyelography of more real diagnostic value than that obtained by any other means employed in the examination. The knowledge gained in this way may be summarized as follows:

1st. It definitely locates the position of the kidney and usually also the ureter. (See Figure II.)

2nd. Real obstructions in the ureter are accurately located by noting the lower limit of the hydronephrotic sac which forms above the obstruction. (See Figure IV.)

3rd. Stones may be accurately located by comparing the collargol plate with the plate taken at the beginning of the examination. (See Figures IV, V.)

4th. The capacity of a hydronephrotic sac can be accurately determined by noting the amount of collargol solution it takes to fill the sac, and this is confirmed by the outline as shown in the collargol plate. (See Figures IV, III, V.)

5th. Tumor growths may be often recognized by the irregular outline of the pelvis. (See Figure V.)

In our early work with collargol we often produced a rather severe renal colic, which inconvenience has been apparently eliminated, since I have used a burette (See Figure I) instead of a syringe to fill the pelvis and the kidney with the solution. The slow, regular filling of the pelvis by means of the burette seems to be less likely to produce colic than when a syringe is used. At the same time, with the burette the capacity of the pelvis can be more accurately estimated by noting the quantity which has run in up to the time of the production of the first discomfort or up to the time a return flow along the side of the catheter is first noticed. This latter is indicated by the return of the solution through the open irrigating cock on the cystoscope or through a third catheter introduced into the bladder before removing the cystoscope.

The entire examination should not take more than a half hour. The requirements for success are a thorough knowledge of the pathology of the urinary tract, a first class X-ray outfit and radiographer, and a definitely planned cystoscopic technic, every step of which is carried out with accuracy and precision.

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## ON THE SURGICAL TREATMENT OF RENAL AND URETERAL CALCULI, WITH A REPORT OF 82 CASES.\*

By D. P. KOUZNETZKY, M.D.

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**I**N Russia the first operation for nephrolithiasis was performed by Prof. N. B. Sklifosofski in 1883; since then, that is, for the past twenty-four years, the reported cases of stone in the kidney and ureter treated surgically have reached the number of 168,<sup>1</sup> of which 25 belong to Prof. A. A. Bobrow.

In view of this, I take occasion to present briefly the results of surgical interference in 82 cases of renal and ureteral calculi, observed in the clinic and private practice of my esteemed teacher, Prof. S. P. Fedoroff. I will state here that no percentages will be given, as the number of cases does not reach one hundred.

Three cases were operated on for the relief of anuria, due to calculi; and of these two died. Of the 17 cases operated on for bilateral nephrolithiasis 6 died; but of the 52 patients who underwent operations for unilateral nephrolithiasis only 7 died. Ten cases were operated for unilateral ureteral calculi, and of these one died. All in all, therefore, of the 82 cases treated, 62 recovered (i.e., they were completely cured, or relieved) and 16 died.

On one case of anuria<sup>2</sup> due to the complete obstruction of both ureters by stones, a unilateral pyelolithotomy was performed, on the eighth day after the onset of the anuria. The patient died on the thirteenth day after the operation from uremia, notwithstanding the fact that the secretion of urine was re-established.

On another case of urinary obstruction due to ureteral calculi, in a patient 78 years of age, a bilateral nephrolithotomy was performed, at one sitting, on the fifth day of the anuria. Death followed on the sixth day after the operation, as a result of uremia, although urinary secretion was re-established by the operation.

In a third case, that of a woman 65 years of age, a ureteral lithotomy was performed by Prof. Fedoroff on Jan. 3, 1905, for anuria resulting from the obstruction of the ureter by stones, in a single congenital kidney. In Nov. 1907, a recurring calculus

\* Translation by Dr. A. E. Epstein.

anuria was obviated by catheterization of the ureter, performed by D. P. Kouznetzky; after which procedure, two stones were passed. At the present time, the patient who is 72 years of age, is alive and well.

Seven cases of bilateral nephrolithiasis were operated upon. The operations performed on the two sides were of a different type. Of the 7 cases so treated, 3 were cured or relieved; one had a persistent sinus after a nephrolithotomy, and the other three died of sepsis.

In 10 cases of bilateral nephrolithiasis, different operations were performed on one and the same side. Of these ten, seven were relieved, two died of uremia, and one of thrombosis on the renal artery, on the seventh day after the operation.

Pyelolithotomy *in situ*<sup>3</sup> was performed on 11 patients suffering from unilateral nephrolithiasis. All the patients were cured. Pyelolithotomy with fixation of the kidney was executed on three cases; all recovered. Pyelolithotomy with subsequent nephrolithotomy performed in one case, resulted in recovery. Pyelonephrolithotomy was performed in one case, with recovery.

In 24 cases nephrectomy was performed. Of these 19 recovered, and 5 died. One death occurred one month after the operation and was due to senile marasmus. One patient (a woman) recovered from the operation, though she was suffering from a nephritis in the second kidney, left the hospital after the wound was completely healed, and nine months thereafter died of uremia due to the progressive character of the disease in the remaining kidney. One patient died of secondary hemorrhage six hours after the operation, caused by slipping of the ligature from the stump. One patient died of a double pneumonia; and lastly, one died of uremia due to the insufficiency of the second kidney.

Nephrolithotomy performed on six patients resulted in the complete recovery of two. Of the others, one was discharged with a persistent sinus; two required a secondary nephrectomy, and one died of uremia.

Secondary nephrectomies were performed on 8 patients, with the following results: six recovered; one died of sepsis; and in one case, as the nephrectomy could not be completed, it became necessary to finish the operation with a secondary nephrolithotomy. This patient left the hospital with a small urinary fistula.



In 4 out of the 10 cases of unilateral ureteral calculi, ureterolithotomy was performed. One of the four cases operated upon was a woman 60 years of age, who died suddenly one month after the operation of cardiac paralysis, at a time when the wound was almost healed. In another patient (also a woman) in whom a small calculus was found impacted within the wall of the lower part of the ureter, the stone was removed by high section of the bladder. In a third case (also female) at first a nephrolithotomy was performed; then owing to the persistence of a urinary fistula, a secondary nephrectomy was done, and finally, several months later, following the development of a pyoureter, produced by the stone that was left in it (from the previous operation), a complete resection was made.

On another patient (male) a nephrectomy and partial resection of the ureter was at first done; and several months later a ureterotomy was performed, resulting in complete recovery. One other patient, a woman, had a nephrectomy with partial resection of the ureter; the resected portion of the ureter contained the stone.

Complete nephroureterectomy performed on two patients, resulted in the complete recovery of both. In one of these cases,<sup>4</sup> a very long ureteral stone was found. This stone is the longest on record as it measures 19 cm. in length and weighs 52 grams. (Fig. 1.) The other case<sup>5</sup> was one in which the kidney had two ureters. In one of these ureters a calculus measuring 6 cm. was found near its vesicle end. (Fig. 2.)

It can be seen from the description of the above cases that the more conservative, I might say the more ideal, operation for renal calculi is that of pyelolithotomy *in situ*<sup>6</sup> recently proposed by C. P. Federoff, who by this method removed the largest known renal calculus, weighing 192 grams. (Fig. 3.) The stone was removed by section of the pelvis *in situ*, without delivering the kidney through the external wound.

The technique of this operation is as follows: An oblique incision in the posterior girdle region, or the one suggested by Guyon, is made. According to Guyon, this incision is made in those cases in which the X-Ray shows that the lower end of the stone appears to be at the level of, or above, the twelfth rib. After the incision is completed, the fatty capsule is incised and the lower posterior surface of the kidney is exposed. In order to prevent slipping of the kidney from the fingers of the operator,

the assistant holds the fatty capsule, which is adherent to the anterior surface of the kidney, firmly in place by means of a Luer clamp. If the kidney is placed very high and descends with difficulty, then the twelfth rib is resected. As a result of this procedure, in all the experience of the operator, it was never found necessary to separate the upper pole of the kidney, nor to expose its anterior surface. If the posterior surface of

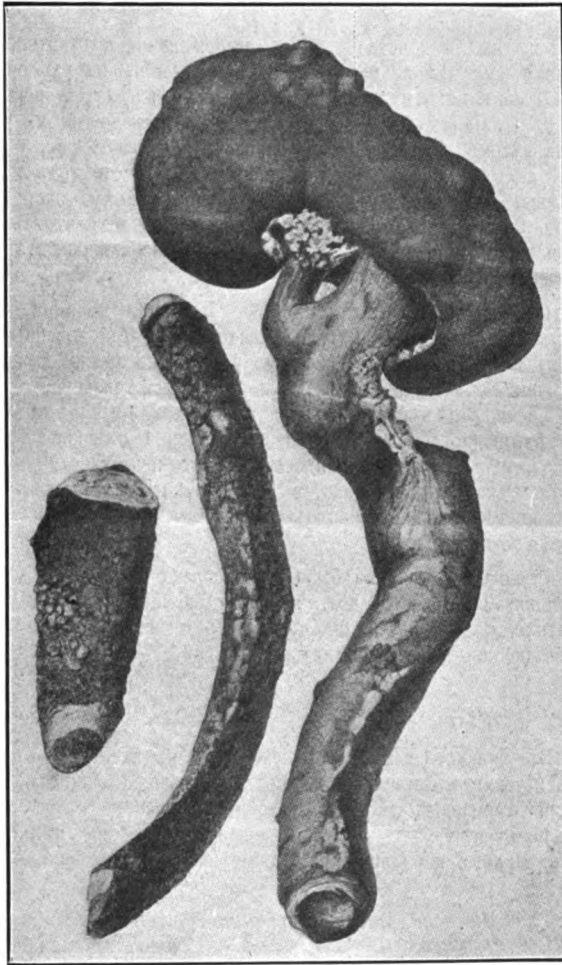


Fig 1.

the pelvis is covered with too much fat, the latter is then separated by blunt dissection, and partly with scissors. In this man-

ner, and also by pressing the kidney forward by means of a broad retractor, it is possible to expose the posterior surface of the pelvis with the contiguous portion of the ureter, and bring them plainly into view. Then an incision in the pelvis is made, varying in length and direction according to the size and the form of the stone. The calculus is finally delivered with forceps and spoon.

After this the pelvis can be easily explored with the finger or sound. There is usually no difficulty in applying sutures to the pelvic wound, if they are found necessary. The entire operation is bloodless as a rule. Bleeding, however, may occur occasionally from the mucous membranes of the pelvis, especially when the calculi present are multiple, or when they have sharp ends.

The operation herein described has one very important advantage; namely, that the kidney proper suffers very little traumatism in the course of the operation. Furthermore, the fact that the fatty capsule remains attached to the upper pole and an-

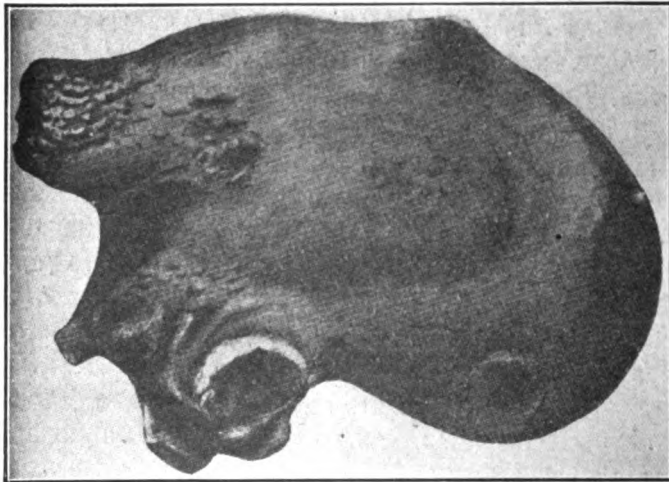


Fig 2.

terior surface of the kidney is also of great significance, especially when contamination from infected stones is possible.

It is also necessary to take into consideration the fact that after the above operation less scar tissue forms around the kidney than that which results after operations in which delivery of

the kidney through the wound is necessary; for, in the event of recurrence of calculi, a second operation can always be performed with greater ease.

Even recently many surgeons opposed the operation of pyelolithotomy, on purely theoretical grounds, as though this operation inevitably lead to the formation of persistent urinary fistulae. Judging by our own experience (as can be seen in the description of the cases given above), the very opposite is true. Not a single fistula was found after pyelolithotomy, whereas it occurred in 3 cases after nephrolithotomy.

The likelihood of a formation of a persistent sinus is avoid-

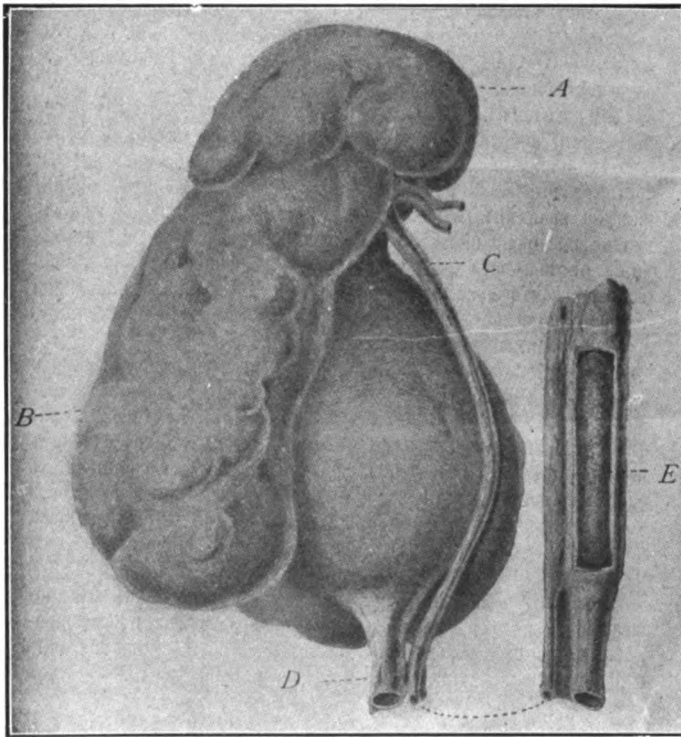


Fig 3.

able, because in pyelotomy one can readily establish the normal patency of the ureter. When this is accomplished during the operation, either by passing a sound, or by straightening out a kink in the ureter, or by some plastic procedure, or by fixation

of the kidney, then the very longest incision in the pelvis results in complete and rapid healing, even without the application of sutures.

On the other hand, even the very smallest incision through the parenchyma of the kidney does not heal at times, for months and even years, when there is the least interference with the passage of urine into the pelvis or ureter. Of course the most important disadvantage of nephrotomy for nephrolithiasis, even to this day, is the occurrence, not so much of persistent sinus, as that of a primary or secondary hemorrhage. No matter what the nature of the incision in nephrolithotomy may be, there is always danger of encountering a primary or secondary hemorrhage, which at times leads to a fatal issue, as in the 5 cases recorded by Israel.

Hemorrhage may occur on the first three days after the operation, entirely unexpectedly, and with great violence. Makkas mentions 10 cases with hemorrhage, in 3 of which hemorrhage occurred on the 8th day after operation; in 2 cases on the 7th day, and in 1 case on the 9th day. In the remaining 4 cases the day of post-operative hemorrhage is not stated. Death followed in 2 cases without any evident complications, and in one case after secondary nephrectomy. The other cases recovered from the hemorrhage. Of these, 2 recovered after tamponing the wound, 1 after ligation of the bleeding artery, and the others after secondary nephrectomy.

Neuhaüser cites 16 cases of Israel's, that had secondary hemorrhage after nephrolithotomy, in which tamponade gave good results. Of the 16 cases, 10 were tamponed, resulting in the death of only 2 cases. Of the remaining 6 cases, on whom a secondary nephrectomy was performed, 3 died. Neuhaüser gives the following explanation for the development of secondary hemorrhage in certain cases. If the blood clot which forms after the operation on the kidney extends to and occludes the ureter, then the urine accumulates in the pelvis, distends it, as well as the parenchyma, in consequence of which (especially when the catgut becomes succulent), the approximated surfaces of the incision are forced apart, and they begin to bleed. The number of cases in which this occurs the author does not state; but it must be conceded that this explanation applies to a great many cases in which secondary hemorrhage occurs. This of course does not include that group of cases in which the hemorrhage is

due to some constitutional anomaly ; as for example, hemorrhagic diathesis, or arterial disease of luetic or other origin.

The more certain way of averting a secondary hemorrhage, from a plugging of the ureter by blood clot, which frequently occurs after nephrolithotomy, in my opinion, is afforded by pyelotomy, with drainage of the pelvis for about two weeks, or at least until the complete disappearance of hematuria, even if it be only for a few days. Within this time, the wound in the parenchyma of the kidney will have sufficient time to cicatrize, so that separation of the surfaces, as a result of obstruction to the outflow of urine, will not occur.

It is necessary at the present time to show that an incision in the pelvis of the kidney heals just as well and even more rapidly than an incision in the renal parenchyma, as long as the ureter remains patent throughout its length, and its musculature is not atonic. I have had occasion to observe in cases in which both nephrotomy and pyelotomy were performed simultaneously, on one and the same kidney, that the wound in the pelvis of the kidney healed first. When a pyelotomy is done, and it is found for some reason or other that it is not possible to remove the stone at all, or in part only, and nephrotomy becomes necessary, two advantages are thus gained: first, in the presence of a free drainage through the pelvis, the kidney parenchyma has a better chance to heal, and to functionate; secondly, if part of the stone or stones has already been removed through the pelvic opening, then one can be more conservative with the nephrotomy, and thus spare the kidney proper as much as possible.

It is important to remember that it is never necessary to do the so-called "pyelonephrotomy"—that is, an incision of the pelvis continued upward into the kidney substance, as suggested by Zuckerkandl and Makkas. In such an operation injury to an artery and vein (which usually run parallel to the line of juncture between the pelvis and the parenchyma) inevitably occurs. As a result of this bleeding often takes place, which at times is controlled with great difficulty.

With the development of radiographic diagnosis in the early stages of nephrolithiasis, and with the recognition of the advantages of pyelotomy, incision through the parenchyma of the kidney for the removal of stones will be necessary only when there are definite indications for such a procedure, or as a means

of completing the operation when pyelotomy alone is not sufficient.

The advantages of the latter procedure (pyelotomy with nephrotomy), which for the present, as far as I know, is practised only by Professor Fedoroff, are quite apparent: first, whereas only a small incision into the kidney substance is necessary, more of the parenchyma is spared; and second, what is more important is the fact that, through the pelvic drainage, a wide passage for the urine and oozing blood is obtained. This serves to prevent retention of urine with consequent distention of the pelvis and traction on the renal sutures, thus avoiding every chance of hemorrhage.

Nephrotomy with pyelotomy was performed by Professor Fedoroff, with complete success, on 4 cases; in 3 for bilateral nephrolithiasis, and on 1 case for stone in the remaining kidney, the other kidney having been removed at a previous operation.

#### REFERENCES.

1. V. E. PROSSKOURIN—"Stones of the Kidney and Ureters, and their Operative Treatment."—*Dissert.* Moscow, 1910.
2. D. P. KOUZNETZKY—"Trois cas d'anurie calculeuse." *Ann. des mal. des org. gén.-urin.*, May, 1911, p. 801.
3. S. P. FEDOROFF—"Zur Technik der Pyelolithotomie." *Zeitsch. f. Urologie*, Bd. IV, 1910.
4. S. P. FEDOROFF—"Zur Kasuistik der Uretersteine." *Zeitsch. f. Urologie*, Bd. III, 1909, p. 65.
5. D. P. KOUZNETZKY—"Über einen Fall von Niere mit zwei Ureteren, Partielle Pyonephrose in Folge von Verstopfung des einen Ureteren durch einen Stein." *Zeitsch. f. Urologie*, Bd. III, 1909.
6. D. P. KOUZNETZKY—"Stones of the Kidney and Ureters." *Dissert.* St. Petersburg, 1911.

## A CASE OF UNRELIEVED UNEXPLAINABLE VESICAL TENESMUS

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**M**Y reason for reporting this case is the unusual picture it presents. In my experience I have never seen a case comparable to it in the symptoms manifested.

Mr. H. P., aged 67, was admitted to Garfield Hospital on Oct. 6, 1911. He had been under Dr. Hardin's care one week, complaining of frequent urination and great tenesmus. The patient lost a leg during the Civil War; otherwise he had been normal. For five years, however, he had had symptoms of prostatic obstruction. On Sept. 28 the patient had complete retention, relieved for a short time by catheterization, the tenesmus returning after a half hour. The tenesmus and urinary frequency continued, gradually increasing up to my first visit, Oct. 4. When I first catheterized the patient I obtained 6 ounces of residual urine. The urine contained colon bacilli and a moderate amount of pus. The catheterization relieved his bladder spasm for about twenty minutes—then the tenesmus returned and a catheter reintroduced obtained only a small amount of urine, without relief of pain. I have never witnessed such distressing tenesmus as this patient had. He would writhe in agony and hop out of bed on his single leg and strain until one would think he would have an apoplectic stroke. Usually when the paroxysm reached its crisis he would insert his finger into his anus and make forcible pressure on the soft parts on the tuberosity; this he declared invariably afforded him some measure of relief. His bladder capacity was 7 ounces. The cystoscopic examination, which was not very painful, revealed a moderately enlarged intravesical prostate with regular outline; on rectal examination a fairly firm, moderate size prostate was noted. There was nothing suggestive of malignancy. I considered the only thing affording relief from his terrible suffering was rest for his bladder, so a perineal section was performed and a drainage tube inserted. As soon as the patient recovered from the anesthetic the tenesmus returned, being as severe as before the operation. He was given full doses of morphia to relieve the tenesmus, which had very little effect. I then thought the presence of the perineal tube in the bladder



might be a factor in causing a continuance of the tenesmus, so it was removed, replacing it with a soft rubber catheter. His relief was of only 30 minutes' duration, tenesmus then returning. The patient spent a most restless night, the spasm occurring every 20 minutes. On the morning of the 7th I irrigated his bladder with salt solution and removed the catheter, fearing the presence of any foreign body in the bladder might account for the continuance of the spasm. Within a few minutes the tenesmus returned with all its former severity, although only a few drams of urine was present in the bladder.

Careful examination showed neither prevesical or postvesical infection, and as there was a leucocytosis of 16,000, and as the patient was very stout, we considered the possibility of not being able to diagnose an infection outside the bladder. As the tenesmus continued in spite of the perineal drain, the only possible resort with promise of relief that I could suggest was through a suprapubic cystotomy. Before doing this, however, Dr. Thomas Charles Martin was called in and a careful rectal examination was made to learn if any rectal condition could account for the suffering. His examination was negative, so the cystotomy was done under cocaine anesthesia. The patient was more comfortable for about half an hour when the tenesmus returned with all its severity.

When I found the suprapubic drainage did not relieve the suffering I removed the suprapubic tube to be rid of the presence of a foreign body in the bladder. The symptoms however were unchanged. The patient died 36 hours after the second operation, frightful tenesmus continuing almost to the time of his death.

On admission the patient's temperature was normal, pulse 124, and respiration 24. He was weak, however, and in poor physical condition following the previous week's loss of sleep and his continued suffering. His highest temperature at the Hospital was 101, but his pulse gradually increased in frequency. With great difficulty I obtained permission from the family to remove the bladder, rectum, and kidneys. The autopsy revealed only a very mild grade of double pyelitis, merely a little reddening of the pelvis; the rectum was absolutely normal, as was the tissue surrounding the bladder. The peritoneal cavity was free of infection or neoplasm. The bladder and prostate presented pic-

tures as described in the examination. Sections through the prostate showed fibro-adenomatous tissue but no malignancy.

When I first saw the case I examined him carefully for some central nervous lesion that might cause this condition, with negative results. The only possible explanation I can give as a cause for the unrelieved symptoms is that the septic condition of his bladder produced a toxic neuritis of the nerves supplying that viscus. This was one of the most trying cases it was ever my experience to treat, and one of the saddest to behold.

THE FARRAGUT.

## MY LATEST VIEWS ON SALVARSAN

By A. RAVOGLI, M.D., Cincinnati, Ohio.

**T**HE enthusiasm which was at first aroused by the announcement of the new remedy for the treatment of syphilis has greatly subsided. Cool observation, quiet study, and reflective appreciation of the scientist only remain. The alluring and catchy advertisements of the unscrupulous quacks in the daily papers have diminished or nearly disappeared.

Salvarsan is a powerful remedy, which must be used by an experienced man. Its preparation for injection requires some training, and at every injection new difficulties may arise. In a brief address it is an impossibility even to mention a small part of the literature on the subject.

**Solution acid or alkaline:** From our experience we have learned that a neutral or a mild alkaline solution of salvarsan is the best, the least irritating and the safest for injection. The acid solutions as used by Taege and Duhot, if injected in the muscles causes too much irritation, and used intravenously are too dangerous. Indeed a case of severe collapse ten minutes after the injection was reported by Notthafft,<sup>1</sup> and as a cause he mentioned the acidity of the solution, which had not received sufficient alkaline solution. Fraenkel and Grouven<sup>2</sup> reported the death of a patient after an intravenous injection of a 0.5 percent. solution of acid salvarsan. The autopsy showed that death could be attributed to arsenical poisoning. Ehrlich<sup>3</sup> brought in the question of a possible hypersensitiveness to the drug, but Hering<sup>4</sup> with experiments in animals showed that the injurious effects had been the results of the injection with acid solutions. Miesner<sup>5</sup> compared the effects of alkaline and of acid solutions of salvarsan on cattle. The results were that 400 milligrams per kilo of alkaline solution caused no apparent disturbances, while five milligrams per kilo of the acid solution caused labored respiration and death to the animal. The autopsy showed thrombosis of the bloodvessels of the lungs, with infiltration of the parenchyma. This was explained by Michaelis<sup>6</sup> by the possibility of the drug being precipitated in the circulation by the alkalinity of the blood.

MacKee<sup>7</sup> has reported several cases of intravenous injections with diluted acid solutions of salvarsan, made for experimental purposes, without noticing any injurious effects. On the contrary Spiethoff,<sup>8</sup> Duhot,<sup>9</sup> Darier and Cottenot,<sup>10</sup> all regard a

mild acid solution superior in its action, to the alkaline, and accompanied by less pain and without danger of causing thrombi in the veins. However this may be, and with due respect to these experimenters, we will repeat with MacKee, that a concentrated acid solution in the veins will cause death, while in very diluted acid solution, although it does not offer great danger, yet there is no advantage over those made with mild alkaline solutions. For these reasons we are using a mild alkaline solution and so far we have never had any serious accident.

For intramuscular injections an alkaline solution is much more painful than an acid or a neutral one. Tryb<sup>11</sup> found experimentally that alkaline solutions of salvarsan in the muscles produce much quicker necrosis of the tissues. When necrosis is very deep and abundant an abscess is bound to follow with all the troubles which accompany this unwelcome occurrence. This has lead us to use for intramuscular injections the solution according to the former method of Alt.

In a sterilized glass mortar the salvarsan powder is placed, to which 5 c.c. of hot distilled water are added. The drug is soon perfectly dissolved as a greenish liquid of very acid reaction. From 12 to 13 drops of 15 per cent. sodium hydrate solution is sufficient to obtain a yellow homogeneous emulsion resembling mayonnaise. If it has to be used for intramuscular injection then 20 c.c. of normal salt solution is added. If for intravenous injection it is diluted with normal salt solution to the extent of 250 c.c., placed in a bottle, and then there are added five drops of the alkaline solution at each time untill it gets perfectly clear. In my hands it takes 28 to 33 drops more than those placed in the mortar. At this point although the solution is clear yet little granules are seen in the bottle, and for this I strain the solution through cotton or sterilized gauze. In the beginning I used the ordinary sterilized paper filter but from the chemicals contained in the paper the solution turned green. The solution has to have a yellow, clear amber color, and must be injected warm at the temperature of 78 to 80. Many have spoken of the injections of the drug suspended in oil, in oil of vasilin, in oil of sweet almonds and Pollitzer proposed the mixture of salvarsan in iodipine. Ehrlich himself discredited the employment of oil suspension. I have employed the oil suspension in a few cases where I was afraid to inject a full dose, but the results have been very doubtful. I must refer to a case of ulcerated gumma of the tongue which did not respond to the ordinary treatment, and from the patient I

learned that he had received several injections of salvarsan in oil without any result. I gave him an intravenous injection, and five days later the ulcer of the tongue, to the astonishment of the patient, was healing fast.

How to give the remedy — intravenously, intramuscularly, or subcutaneously: It is known that salvarsan in solution, either concentrated or diluted, alkaline, acid or neutral, causes necrosis of the tissues. In some cases injected in the veins it causes phlebitis, producing thrombi in the vein.

The injection in the subcutaneous tissue is very painful, and causes necrosis, with resulting gangrenous patches. It has been abandoned.

Intramuscular injections are also painful, not in all cases to the same degree. The remedy is quickly absorbed, and its action is durable. In a few cases I have given the injection in the gluteal masses, but the pain has been very severe and has prevented the patient from walking, or even from lying comfortably in bed, as he was obliged to lie on his chest. For this reason I select the lumbar region, one injection of 10 c.c. on each side, three inches from the spinal column. With the left hand I raise a fold of the skin and muscular masses, and obliquely introduce the needle of the syringe to its full length. When no resistance is met with the fluid is gently pressed into the tissues. The same operation is repeated on the other side. The parts are gently massaged until no signs of fluid are found. The pain from the injection amounts to practically nothing, so much so that many patients have gotten the injection in my office and have gone home traveling two or three hours in the train without discomfort. The pain begins after 6 or 8 hours, as a burning sensation in the place of the injection, which usually is accompanied with general symptoms of malaise, nausea, pain in the stomach, sometimes vomiting, and a slight elevation of the temperature.

For the injection in the veins, the solution must measure 300 c.c. and be perfectly clear. I select the veins of the flexion surface of the elbow, the basilic or the cephalic. After the part has been thoroughly cleansed, and washed with ether, a bandage is placed around the arm to stop the circulation. When the veins are turgid, I used to make an incision with a small bistoury over the vein, to have the vein exposed, then insert a sharp, small needle in the vein. The blood comes out from the needle. The nurse immediately removes the bandage, and the tube of the apparatus is applied to the needle, after being sure that all the air is out. The nurse

presses the bulb of the bottle, and she is able to tell if the fluid rushes into the vein easily, or if there is some obstruction. In some cases the vein gets black, turgid, the blood is coagulated. It is necessary immediately to stop the operation, remove the needle, and bandage the arm, then open another vein. I now go into the vein directly without cutting the skin first, but sometimes there is danger of not going clear into the vein. The introduction of normal salt solution at the beginning is of no use. The blood coming out of the needle is a sure sign that we are in the vein. I introduce immediately the salvarsan solution, avoiding thus unnecessary movements of the needle. The fluid rushes in a small stream, which is regulated by the pressure given to the pump, never more than 30 c.c. per minute. The stream in the vein can be felt with the tip of the finger applied on the vein. The patients do not complain of any pain nor discomfort, but usually keep laughing and chatting. Sometimes while everything is going on so nicely the vein begins to get black and turgid, the fluid does not run any more, and it is necessary to stop. Another vein is immediately opened and the operation is finished. In a few cases the patient under the operation has turned pale, the pulse became very slow and collapsed. In these cases, after reviving him, in a few minutes I had another salvarsan solution in 20 c.c. ready, and I gave him the full quantity in the muscular masses.

Now the question arises if either of these two methods, the intravenous and the intramuscular, have an advantage one over the other, which is to be preferred?

Fordyce said: "In my opinion the intramuscular injection of alkaline solution brings about as quick resolution of the lesions as the intravenous method. Probably in the later stage of the disease it is more efficacious than the latter."

I would state that in my experience salvarsan injected in the veins has much quicker effect in the disappearance of the symptoms, than given in the muscles. The proportion should be of 1 to 3. The effect produced by an intravenous injection in 24 hours takes 3 days when given in the muscles. The effect however is the same. In reference to relapses, I must say that they are more frequent and more severe after the intravenous injection than after the intramuscular.

In my service in the City Hospital, a patient, with a severe papular syphilide, received a dose of salvarsan in the veins. In two or three days he was clear from the eruption. A suppurated

bubo remained to be treated, which compelled us to keep the patient in the ward. Two weeks after an eruption of mucous patches of the scrotum appeared, which disappeared soon after a few gray oil injections. A few days ago another patient who had received intravenous injections of salvarsan was admitted under my service with a generalized papular syphilide and ulcerated patches around the scrotum and the anus. Patients who had received salvarsan in the muscular masses, seen quite repeatedly, have shown no more symptoms — only two patients have shown symptoms, one very superficial patches of the tongue, the other of the tonsils, after six weeks. In all those who had received salvarsan in the muscles, Wassermann test made by Dr. O. Berghausen after four months from the injection proved negative in all cases.

When I have a recent case of syphilis in its florid stage, I prefer to give salvarsan in the veins, followed after a while by another injection in the muscles. But when I have a case of long standing lues, after two years or more, then I prefer the injection of salvarsan in the muscular masses. The benefit is very much apparent, and much more durable. The probability of an abscess from necrotic foci is only 6%, and in comparison with the good obtained is negligible.

At present I have given nearly 300 injections of salvarsan, one-third intravenously, two-thirds in the muscular masses of the loins.

The results in general are splendid, in some cases miraculous.

I can never forget in Ward R, a colored man affected with paraplegia who received the injection of salvarsan in the veins and two weeks afterwards was laughing with joy because he could move his toes, and a little later was walking in the ward.

In the case of a colored woman with spontaneous gangrene of both feet, from endarteritis, positive Wassermann, a few days after the injection of salvarsan in the veins the gangrene stopped, the eliminative process separated the dead tissues, a few phalanges were removed, and everything healed up perfectly.

A woman in Ward O was suffering with syphilitic nephritis, edema of both legs, scanty urine with albumin and granular casts. After the injection of salvarsan intramuscular, the urine increased, the edema disappeared, albumin was not found in the urine any more. She left the hospital in good condition.

It would be a long and hard task in a brief address even to mention the cases where I must say the results have been almost beyond expectation.

I will mention some cases where syphilitic manifestations have returned, and others where none or very little benefit could be seen. Several cases of early syphilis, treated with intravenous injection of the salvarsan, have been cleared of the symptoms in a short time, but after a few weeks they have shown eruptions of papules, of mucous patches again. Recurrence however has not occurred in those cases which had been previously treated with mercury.

In this point we must agree with the views of Jordan <sup>12</sup> who finds salvarsan of great benefit if either preceded or followed by mercurial treatment. In 39 cases of injection of salvarsan without any mercurials, he reported 12 recurrences, while in 97 cases which were treated with salvarsan after mercurial treatment he saw only 6 relapses.

The Wassermann test, which is so precious and so valuable as a diagnostic means in dubious cases, I consider together with Plehn <sup>13</sup> not a sure guide in the treatment of syphilis. In a series of 200 cases Plehn found positive reaction in men who had for many years shown no symptoms, and had enjoyed good health, while others with gummous, ulcerative manifestations, gave negative reaction. Cases with secondary luetic manifestations and negative Wassermann have occurred in my practice, and after the salvarsan injection Wassermann test had still remained negative. Some instances have been referred to by Neisser, <sup>14</sup> Lange <sup>15</sup> and Schreiber, <sup>16</sup> in which they found negative Wassermann with relapsing secondary symptoms.

It seems that the treatment by salvarsan in combination with mercurial treatment has much better and more powerful effect on the disease than alone. I have already mentioned a series of cases in which the patients who had received mercurial treatment before and after the salvarsan injection all gave negative Wassermann. Jordan in 97 cases where mercury and salvarsan had been used, found 64 negative, and Heuck and Jaffe <sup>17</sup> with combined treatment found 90% negative Wassermann. All tending to show that *therapia sterilisans magna* has not yet been obtained.

At present when a patient comes with a hard initial lesion I do not change from the old system. I apply Emplastr. Hydrarg. on the sore and also on the syphilitic bubo. As a constitutional treatment I give gray oil injections, one per week. After six injections the patient feels much better and the syphilitic symptoms are greatly diminished. Then I wait two weeks, and



give one salvarsan injection, either in the veins or intramuscular. After this treatment I have seen so far no relapse.

Mercury and salvarsan, and salvarsan and iodide of potassium have no incompatibility in the system. According to Greven<sup>18</sup> the use of mercury after the use of salvarsan delays the excretion of the arsenic in the urine, while a large administration of potassium iodide shortens the time of the excretion of the arsenic in the urine.

In reference to the administration of mercury after the use of salvarsan, it seems to me that the patients do not tolerate it well. In two cases where a reappearance of small patches indicated a relapse after nearly three months from the injection of salvarsan, with negative Wassermann, only one injection of gray oil caused a severe stomatitis in both cases.

Indications for repeating the injections of salvarsan have occurred in my practice only in a few exceptional cases. In two cases of incipient tabes the injections were given twice, at an interval of six weeks. The result was that both patients, who could not walk at all, are now walking around in their places of business, to the astonishment of their employees. In another case of necrosis of the hard palate, and in two cases of syphilitic ozena with caries of the bones, the patients have greatly improved in their general nutrition, but locally there has not been much change.

In babes with hereditary lues, I am sorry to say that my results with salvarsan injections are not different from those obtained by Fisher,<sup>19</sup> Peiser,<sup>20</sup> Torday<sup>21</sup> and others. Nine infants with severe symptoms of congenital syphilis from the age of one to six months were injected with 20 centigrams each of salvarsan mixture according to Alt method. The injections were given in the lumbar and in the gluteal muscular masses. At the beginning they showed signs of benefit. Every week the babes were increasing in weight from 1 to 2 1-2 ounces per week, the rhinitis was somewhat better and they could take nourishment much better. Four of them continued in the improvement and after eight weeks were returned to their families. Five died between the second and third weeks, with symptoms which I characterized as septic. The infant soon turned very pale, temperature subnormal, comatose condition, death. In my service I lost five children in this way, and I think that the old mercurial treatment has given in my hands better results in such cases.

In cases of abortion I have had the same results. A woman

was infected by her husband, both had severe papular eruption. Both got salvarsan, and both got entirely free from syphilitic manifestations. Wassermann could not be practiced. After three or four months the wife got pregnant, and a miscarriage followed.

In conclusion I must say that salvarsan has a great action on active lesions of syphilis. It kills the spirochaetae, but it seems that some of them escape, and for this reason relapse follows. It is a great addition to the therapeutics of syphilis, but we cannot so far forget our old friends mercury and iodide.

- <sup>1</sup> Notthafft, von. Zur Frage der Gefahr endovenösen Einspritzung saurer Lösungen von Salvarsan. *Deutsche Med. Woch.*, XXXVII, Feb. 2, 1911.
- <sup>2</sup> Fraenkel, u. Grouven. Erfahrungen mit Ehrlichshen Mittel 606. *Münch. Med. Woch.*, LVII, n. 34.
- <sup>3</sup> Ehrlich, P. Bietet die intravenöse Injection von 606 besondere Gefahren? *Münch. Med. Woch.*, LVII, No. 35. Aug., 1910.
- <sup>4</sup> Hering, H. E. Experimentale Erfahrungen, über die letale Dosis der sauren Lösung von Ehrlich-Hata 606. *Münch. Med. Woch.*, LVII, 1910.
- <sup>5</sup> Miesner. Die Ursache für die giftige Wirkung saurer Salvarsan Lösungen. *Deutsch. Med. Woch.*, XXXVII, 1911.
- <sup>6</sup> Michaelis. *Deutsch. Med. Woch.*, XXXVII, 1911.
- <sup>7</sup> MacKee, George M. A comparison of the results obtained by the intravenous administration of acid and alkaline solutions of salvarsan. *New York Med. Jour.*, Oct. 21, 1911.
- <sup>8</sup> Spiethoff, B. Zur Frage der sauren oder alkalischen venösen Salvarsan Infusionen. *Münch. Med. Woch.*, LVII, No. 32. Aug. 8, 1911.
- <sup>9</sup> Duhout, R. Methodes des infusions intraveineuses acides à grande dilution. Bruxelles, 1911.
- <sup>10</sup> Dariér et Cottenot. De l'action nocive pour les veines et pour le sang des injections intraveineuses hypercalcaïnes d'arseno-benzol. Bulletin et memoires de la société medicale des hôpitaux de Paris. 38 XXXI, 1911, quot. by MacKee.
- <sup>11</sup> Tryb, A. Histologische Veränderungen des Gewebes nach Einspritzungen von Salvarsan. *Monatshefte f. Pract. Derm.*, B. 52, No. 8, April, 1911.
- <sup>12</sup> Jordan, Arthur. Bemerkungen zur Frage der kombinierten Quecksilber-Salvarsan Behandlung. *Monatshefte f. Pract. Derm.*, Bd. 53, No. 4, p. 196.
- <sup>13</sup> Plehn, A. *Berlin Klin. Wochenschr.* XLVIII, No. 34. Ref. *Jour. Am. Med. Ass.*, Sept. 23, 1911, p. 1089.
- <sup>14</sup> Neisser. *Berlin Klin. Woch.*, 1910, No. 32.
- <sup>15</sup> Lange. *Berlin Klin. Woch.*, 1910, No. 36.
- <sup>16</sup> Schreiber. *Münch. Med. Woch.*, 1910, No. 27.
- <sup>17</sup> Heuck und Jaffe. *Deutsch. Med. Woch.*, 1911, No. 6.
- <sup>18</sup> Greven, Karl. Beginn und Dauer der Arsenausscheidung im Urin, etc. *Münch. Med. Woch.*, No. 40, 1910, p. 2179.
- <sup>19</sup> Fisher, Louis. Syphilis in children. *Jour. A. M. A.*, 1911. Feb. 11, p. 405.
- <sup>20</sup> Peiser, J. Zur Kenntniss der Behandlung der kongenitalen Syphilis beim Säugling durch Injection von Ehrlich-Hata 606 bei der stillenden Mutter. *Berlin Klin. Woch.*, 1911. No. 1, p. 13.
- <sup>21</sup> Torday, Franz. Die Arsenobenzol-Behandlung der kongenitalen Syphilis. *Pester Med. Chirurg. Presse*, 1911. No. 2.

## SEXUAL IMPOTENCY IN THE MALE \*

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### CHAPTER I — CLASSIFICATION OF THE SUBJECT

**I**F we depart in this chapter from the customary presentation of the text-books, namely, in the arrangement of the subject, the reason is that we fail to find a purely physiologic division in most of the treatises on the subject. This lack expresses itself in this way, that the various forms of impotence of different origin are brought together without inner connection. We shall endeavor here to treat the disturbances in sexual power according to a purely physiologic scheme, and we believe that in this way all the forms of impotence may logically be presented in physiologic series.

We proceed from the fact that the normal male sexual power, with normally developed copulative organs, results from the following physiologic conditions: The normal sexual impulse must be present, which at a favorable opportunity increases to sexual desire (libido), and automatically produces the sequence of complicated reflex processes, resulting in erection and ejaculation. Finally the voluptuous sensation, the orgasm, belongs to the integral constituents of the sexual act.

All these reflex phenomena are under the control of the cerebrum, which on the one hand sends impulses to the subordinate spinal and sympathetic centers, but on the other hand controls their activity by inhibition.

Disturbances of the male potentia cœundi can be produced, apart from the purely mechanical causes such as defects in the copulative organs, when either the impulses coming from the cerebrum are diminished in their intensity, or are completely absent or when the inhibitory impulses become so strong that the course of the reflex processes suffers.

The disorders in potency, the causes of which we here only speak of incidentally, can also rest upon an irregularity in

\* From *Symptomatologie und Diagnostik der Uro-Genitalen Erkrankungen*.

the course of the reflexes, in a defect in excitability of the spinal and sympathetic centers for the sexual functions.

We have accordingly two main groups of impotentia cœundi to distinguish: I. The mechanical (organic) impotence from anatomical defects in the male sexual organs, and, II., functional impotence, produced by defective innervation and defective conduction of the stimulations and inhibitions proceeding from the central nervous system and the periphery.

The second group includes the disorders of potency produced:

I. By changes in the libido, as follows:

- (a) by greatly increased libido, with which the reflex processes can not keep pace (satyriasis);
- (b) by diminished or lacking libido: impotence of the feeble-minded, of old men, frigidity (*natura frigida*), in constitutional diseases and affections of the vascular glands, impotence from mental diversion, and paralytic impotence;
- (c) by perversion of the sexual impulse: fetichism, homosexuality, etc.

II. Changes in the erectile faculty (*facultas erigendi*):

- (a) by diminution in the excitability of the genitospinal centers: nervous impotence, senile erections, impotence in diseases of the spinal cord, impotence from continuence;
- (b) by immoderate increase in the stimulations (see priapism);
- (c) by increased inhibitions; viz., in organic urinary diseases, in psychic impotence, and impotence from intoxications, and from anesthesia of the peripheral end-organs.

III. Changes in the ejaculatory function (*facultas ejaculandi*):

- (a) by increased excitation of the ejaculatory center (*ejaculatio præcox*);
- (b) by means of increased inhibition of the ejaculatory center (*ejaculatio retardata*, psychic absence of semen);

IV. Changes in the orgasm:

- (a) increased orgasm;
- (b) loss of the voluptuous sensation.

In attempting to treat the disorders of the male sexual functions according to this scheme, which we have outlined, we are well aware that in the multiform clinical picture of nervous impotence combinations and transitions of the individual causes must occur, which are often very difficult to explain analytically. Thus we see in the course of the functional nervous diseases as well as in the urinary and spinal affections, that not merely one condition of normal generative power is lacking, but a whole series of functional disorders is combined. In most cases, however, the pathogenesis of these cases can easily be brought into our scheme.

In speaking of the various forms of impotence we shall repeatedly consider the derangements of virility in sexual neurasthenia, which owe their origin to changes in the libido, in the erectile and the ejaculatory capacities.

The conception of "normal" male procreative power has been so little described, that it is often difficult to establish the limit between physiologic capacity and pathologic weakness.

We shall accordingly define nervous impotence in general as a relative term, meaning the decline of the capacity, which was formerly present to a certain degree, to perform coitus in the normal fashion.

Only in the relatively rare cases of absolute and permanent inability for coitus is there no doubt as to the designation of the condition. The majority of cases, however, the "imagined," the nervous, and the psychic cases of impotence demand an exact analysis and a careful consideration of the previously present ability, before we may make a diagnosis of impotentia cœundi, since with some individuals that must count as relative impotence, which with other naturally cold natures must still be considered as physiologic sexual power. It is a matter of experience that the procreative power also varies in every healthy man within wide limits; it depends upon age, heredity, race, temperament, and climate, the momentary mental state and other external influences, which affect permanently or temporarily the man's ability to copulate.

In our northern lands puberty comes with about the fifteenth year, and is fully developed by the eighteenth. Virility at-

tains its climax at about the age of twenty-five, and declines gradually from that time until about the 65th year, when it usually disappears.

[I cannot subscribe fully to the first part of the statement. A very large percentage of men attain their highest sexual power at the age of thirty-five and even later. I have had a large number of patients who were stronger sexually at the age of forty and forty-five than they were at twenty-five.—W. J. R.]

A much increased duration of capacity for coitus, dependent upon the constitution of the individual and his external conditions, is often met with. In speaking of the changes in the sexual libido we shall have occasion to consider this point again, the physiologic duration of virility.

#### CHAPTER II — ORGANIC MECHANICAL IMPOTENCE

ONE of the fundamental conditions for the normal sexual power is the anatomical perfection of the male copulatory organ. Only severe acquired or inherited deformities and defects of this organ can cause the inability to copulate, which we designate as organic (mechanical) impotence.

Congenital or acquired absence of the penis or an exceptionally small organ are of course complete obstacles to coitus.

Congenital smallness of the penis or its backwardness in development resulting in infantile size is much commoner than congenital lack of the penis,<sup>1</sup> which is always associated with marked defects of the other sexual organs, and hence with a general lack of sexual development. The congenital developmental anomalies of the urethra—total epispadias with ectopia vesicæ, hypospadias of the perineal and scrotal urethra—often result in inhibiting the development of the penis. But this stoppage in development can also occur without a tangi-

<sup>1</sup> Thus, e.g. the case of Räuber: Congenital lack of the male organ. Virchow's Archiv, Bd. 121: "A 38 year old shoemaker came for examination on account of diarrhea, tenesmus, and burning in the rectum. He showed complete lack of the penis with normal scrotum and testicles; the urethra opens into the rectum, probably in its anterior wall; the above mentioned symptoms were produced by temporary irritation of the rectal mucous membrane by the urine, and cease at once after irrigation of the rectum. The patient declares that with sexual excitement he plainly feels the pouring out of semen in his rectum."

ble cause, and is then called idiopathic infantilism; for example in idiots.

Injuries and gangrene can produce complete lack of the penis. Here belong the amputations of the penis performed for religious reasons by the Skopzi of the Great Seal (removal of the penis and scrotum with contents), and of the Small Seal (removal of the testicles alone); also amputations of the penis for criminal reasons, gunshot-injuries, mutilation by biting of animals,<sup>2</sup> finally gangrene and phagedenic ulcerations (syphilis, chancroids). The numerous cases described in the literature of the subject, however, demonstrate that incomplete mutilation is not necessarily an obstacle to copulation, for even the smallest penis-stump, which in erection was only a few centimeters long, made coitus possible and indeed conception in the woman. We know, moreover, that for impregnation the depositing of semen in the lower part of the vagina or even in the vestibule without perforation of the hymen can under some circumstances suffice. There have been famous cases, in which after amputation of the penis for cancer the stump with the addition of an artificial appliance permitted coitus to the complete satisfaction of both parties.

Mechanical incapacity for coitus can further be produced by a very short and narrow prepuce, that makes erection impossible, and also by paraphimosis. The difficulty in erection may result from an ulcerative balanoposthitis with over-sensitiveness of the glans penis. The same effect may result from great tumors of the penis, carcinoma, condyloma (in one of our cases a large preputial concretion with simultaneous phimosis), tumors in the neighborhood of the penis, namely, great herniæ, containing a large part of the abdominal viscera, which pull down the skin in folds over the penis, so that even in erection hardly the tip of the glans appears, also hydroceles of enormous dimensions, lipomata, elephantiasis of the scrotum and prepuce. Also thick folds of adipose tissue with general obesity and a pendulous belly can mechanically prevent cohabitation.

<sup>2</sup> O. von Frisch recently presented before the Vienna Medical Society a young man in whom the external genitals were completely missing. When a child he had his penis and scrotum bitten off by a dog.

A relatively more frequent cause of mechanical inability to copulate may lie in a curving of the penis in the erected state. This may be congenital (congenital torsion of the penis so that the urethral orifice opens above) (caddy), or, as is much commoner, it may be acquired. Shrinking processes in the corpora cavernosa with obliteration of their retiform spaces may lead on erection of the organ to deviations (chords) or to an irregular stiffening of the penis.

The results of an inflammation of the corpora cavernosa or of periurethritis, gummata; new growth, and fistulæ of the urethra can have the same effect upon the erectile faculty. The so-called idiopathic plastic induration of the erectile bodies, the etiology of which is still far from being satisfactorily explained is especially important. Doubtless this plastic induration can in some cases be the end-stage of a "fracture of the penis," that is an injury to the erectile bodies during coitus—a sort of callous formation. Although in other cases such a coarse mechanical lesion is not demonstrable, we still seem to be justified in supposing that with repeated erections minimal hemorrhages and thromboses in a part of the retiform spaces of the corpus cavernosum can occur, which by organization result in a thick neoplasm of connective tissue and in induration of the erectile bodies.

The plastic, indurated foci, often symmetrical, which occur in the tunica albuginea of the erectile bodies have not yet been etiologically explained. Syphilis, diabetes, gout, arteriosclerosis, (Tuffier, Pousson) are made responsible for this incapacity for coitus, depending upon chordee.

It is finally to be mentioned that acute and chronic periurethritis with resulting strictures due to contracting cicatrix of the urethra may render erection impossible, because the pain resulting from the stretching of the penis produces immediate detumescence of the organ.



## CHAPTER III — IMPOTENCE FROM CHANGES IN THE LIBIDO

WITH the coming of puberty, by which we understand the beginning of a rapid development of the sexual organs with remote effects upon different parts of the organism and upon it as a whole (secondary sexual characters), "there appear in the consciousness of the individual impulses to contribute to the preservation of the species" (Krafft-Ebing). The sexual instinct at this age of puberty is a physiologic law.

The seat of this impulse is to be sought in the brain, according to Gall in the cerebellum. The excitations and stimuli for this revolution in the organism may come according to the latest views from an "internal secretion" of the genital glands, since we must also regard the somatic phenomena of puberty as a function of this internal secretion.

This sexual instinct is entirely independent of the spinal centers for the male's sexual functions, for experimental physiology teaches that the copulatory instinct persists unweakened in animals, in whom the lumbar and sacral portions of the spinal cord containing the centers for erection and ejaculation has been extirpated. (E. Müller.)

The general impulse, the sexual instinct, can be heightened to lust through various circumstances, association with the female sex, or erotic images, and this we denote as the libido or sexual lust, while the indefinite urging towards sexual activity we designate as sexual necessity.

While in the animal kingdom this impulse is often limited to certain periods, supposedly of hypersecretion of the genital glands,—rutting-time,—the sexual need of the healthy man is able at any time under a favorable opportunity to increase to lust and eventually to start the reflex processes—erection and ejaculation—which bring about cohabitation. The ability to control this strong impulse, to suppress sexual desire in the mind when necessary, is an essential factor in the moral freedom of civilized man.

The appearance of the internal secretion of the genital glands causes the awakening of the sexual need; the senile involution of the glands sets a limit to this impulse. The

limits of the sexual instinct are most sharply marked in woman, in whom the setting-in of menstruation (ovulation) marks the beginning, and the climacteric or senile involution of the internal genital organs under normal conditions marks the end of the psycho-sexual impulses.

[The idea that a woman's psycho-sexual or even purely "grossly" sexual impulses and desires close with the menopause is an erroneous one, in spite of the fact that it has been entertained for thousands of years by the greater part of mankind—practically all men, not excluding medical men. The women knew differently, but they never spoke of their feelings—it would have been disgraceful. Just as unmarried girls are not supposed to possess any sexual feelings, so women after the climacteric are supposed to be sexless. But the idea is false, and physicians who possess the confidence of elderly women know that it is false; know that women of fifty-five and sixty may suffer acutely from a lack of satisfaction of their sexual desires.—W. J. R.]

The duration of the sexual instinct is individually very different, depending upon heredity, race, constitution, education, etc.

Its end in the man usually coincides with the coming of the bodily weakness of age, and falls usually in the seventh decade of life.

Simultaneously with the beginning decline of the libido, the erections also lose in intensity and so do the voluptuous feelings which accompany the end of copulation.

We can also speak of a physiologic impotence due to lack of the libido—when it occurs in the periods before completion of puberty and after the coming of old age.

The sexual need can abnormally be entirely lacking in imbeciles, idiots, and the feeble-minded, as well as in organic cerebral diseases. It is, however, not the rule that these psychopaths are impotent; there is probably lifelong lack of the libido only when infantilism of the genitals accompanies the idiocy. We have already spoken above of the close relation between the internal secretion of the genital glands and the awakening of libidinous impulses; and inborn idiocy,

cretinism, myxedema, etc., are also frequently to be referred to insufficiency of the glands with internal secretion.

According to the assertion of Gall, special diseases of the cerebellum (cysts, tumors, injuries) cause impotence; and this view was supported by much clinical and experimental evidence (Budge, Larrey, Fischer). More recent investigations, however, justify us in doubting this assertion (Nothnagel). The close relations which exist between the sexual life and the sense of smell make us suspect that the sexual centers and the olfactory lie near each other in the cortex (Krafft-Ebing).

We have not as yet succeeded in disclosing the seat of the cerebral sex-center from the pathology of the cerebral diseases; but it is evident that in the severe general and local symptoms of the circumscribed and diffuse cerebral affections the disorders of the sexual functions fall in the background in comparison with the other phenomena.

The disappearance of sexual desire is observed moreover in most other diseases, which are associated with fever and pain. It is especially known of typhoid fever that libidinous feelings generally first appear a long time after complete convalescence, but may later become so strong that nocturnal and diurnal pollutions frequently occur. It is further a matter of course in the different cachexiæ and chronic debilitating diseases the sexual desire is diminished.

Only quite exceptionally in the cachexia of phthisis has the preservation or indeed the heightening of the libido been reported. Von Hoffmann reports the case of an advanced consumptive, who indulged in coitus on the evening before his death.

Impotence is of more significance in various chronic diseases. We find in many textbooks impotentia cœundi noted in the symptomatology of chronic nephritis. A specific inhibition of the cerebro-sexual center might here be exerted by the urinary poisons retained in the blood, in analogy with other chronic intoxications.

This conception is not at all contradicted by Fürbringer's case of a 53-year-old uremic nephritic patient, in whose urine

shortly before his death numerous well-formed spermatozoa were found. The further description of the case, which Fürbringer brings forward as evidence against the existence of impotence in nephritic patients, favors on the contrary our supposition of the extinction of the libido as a result of the nephritic uremia. The patient in question could not perform coitus with his wife for many months before his death. The finding of semen in the urine only proves the continuance of spermatogenesis during the chronic nephritis. I myself have been obliged in many cases, in which the patients complained of diminution or extinction of the sexual need, to declare chronic nephritis to be the cause. It is one of the fundamental rules of diagnosis, that we examine the urine in every case of impotence; we often come in this way, to the great and painful surprise of the patient, to an explanation of the fatal symptom.

A not yet diagnosed case of diabetes mellitus has also been frequently discovered in this way as the cause of impotence.

It is not surprising that in the advanced stages of nephritis with severe uremic phenomena and outspoken cachexia, as well as in diabetes, sexual impotence should occur, when the exhaustion of the patient has reached a high degree. But marked disorders of sexual potency can occur, namely in diabetes, while the patients still enjoy the best of health, and no local or general symptom points to the severe constitutional disease. We can report here from our own experience, that the patients complain mostly of diminished sexual pleasure, rarely of diminished erectile faculty or ejaculatio præcox, etc.

I give here again, with reserve, my opinion that in these forms of extinction of the libido in diabetics we may perhaps have to do with an *insufficiency of the internal secretion of the genital glands* and other glands with an internal secretion, which causes on the one hand the glycosuria and on the other the effect upon the psycho-sexual center.

We can support this supposition of ours by experience with patients with affections of the "blood-glands." So for example, one of the earliest symptoms in acromegaly is impotence with disappearance of the sexual impulse; moreover,

this form of inability for coitus is one of the commonest symptoms of Basedow's disease. In Addison's disease also we find impotence as an early symptom in individual cases (von Neusser.)

If we would go still farther, we might cite here the forms of impotence occurring in obesity and gout, since according to the recent investigations these diseases also owe their origin to an anomaly of the glands with internal secretion.

Now, the relations between the various so-called vascular glands—the thyroid, pancreas, hypophysis, suprarenal capsules, genital glands, testes and prostate—are so intimate; and experimental pathology and clinical experience teach that when one of these glands becomes affected or cease to function, the other glands are usually also influenced; hence we must express the possibility that perhaps the impotence—the decline or extinction of the libido—in these patients is due to an alteration of the glands with internal secretion which in its turn affects the psycho-sexual center.

When in the description of symptoms of diabetes we meet the statement that the sexual power was not merely undiminished but much increased (Fürbringer), we can explain such exceptions by supposing that in such cases the diabetes was not due to pancreas insufficiency but other causes. Senator explained the impotence of diabetics, which Seegen especially emphasized in his excellent work, by a supposed primary change of "nervous organs," and according to Curschmann "still absolutely obscure relations" come into consideration. My hypothetical explanation, which results naturally from the analogy with other diseases of the vascular glands, seems to me to fill an important gap here.

Some undoubtedly good results of the Poehl organotherapy with "Spermin" are made more intelligible by means of this theory. [I cannot let this sentence pass without the remark that I have never been able to convince myself that Spermin—and I used Poehl's—possesses the slightest value in impotency.—W. J. R.]

The cases of impotence caused by acute and chronic intoxications come next to those already considered.

It is at once comprehensible that the severe disorders of consciousness produced by acute alcoholic intoxication can cause impotence; lesser degrees of intoxication, however, rather increase the sexual desire, supposedly by paralysis of the cerebral inhibitions. Moreover, the kind of alcoholic beverage drunk seems to make a difference in the effect on the sexual system. Wine is said to increase and beer to diminish the libido. Whether the anaphrodisiac effect supposed to be obtained from beer is to be ascribed to the hops contained in it (lupulin) is very doubtful.

Impotence is often observed in the course of chronic alcoholism. It surely does not belong, however, to the always demonstrable, characteristic signs. In the severest forms of "chronic alcoholism of the nerves" of the old physicians the decline of the sexual functions was a striking symptom. The libido as well as the erectile faculty fails. According to Lipich's statistics drunkards beget considerably fewer children than abstinent men.

Chronic morphine poisoning is followed very often by impotence according to the unanimous testimony of careful observers (Levinstein, Rosenthal). I treated two morphinists on account of impotence; analysis of their complaints showed decline of libido after a period of very frequent pollutions.

We make use of the anaphrodisiac property of morphine, however, in the treatment of certain forms of impotence from irritable weakness. If we can learn from the examination of the patient that the greatly increased sexual desire before the act causes a too quick erection and ejaculation (*ejaculatio præcox*), we order the patient to take 0.01 to 0.03 morph. hydrochlor. internally, which considerably diminishes the libido. Coitus then usually follows quite satisfactorily to both parties.

Other known anaphrodisiac poisons are opium, bromides, camphor, lupulin, further iodine, and salicylic acid (von Gyurkovechky).

Not only a single large dose of potassium bromide can cause functional impotence of longer or shorter duration, also chronic intoxication with these drugs is characterized by the

decline or extinction of the libido sexualis. We must suppose the action of the drugs given as anaphrodisiacs to be a nearly selective effect upon the psycho-sexual cerebral centers in the nature of an inhibition. The undoubted favorable effect of the bromides in nocturnal pollutions is also to be explained in this fashion:

[We must bear in mind that in cases of sexual atony the bromides are distinctly injurious, and will often increase, instead of diminishing, the pollutions. The entire sexual power, but potentia cœundi and spermatogenesis, are not infrequently irreparably damaged by excessive doses or too prolonged use of the bromides.—W. J. R.]

Impotence was also observed in chronic arsenic poisoning (Rayer). The study of regular arsenic-eaters, in whom, according to the investigation of Rosenthal, no signs of impotence are to be seen, show that there is no anaphrodisiac property in the arsenic as such. Only arsenic poisoning in trades and from drugging with outspoken cachexia leads to impotence.

We cannot agree unconditionally with the view of Fürbringer in regard to impotence from excessive use of tobacco, which we find mentioned by many authors (Fürbringer included) and have also repeatedly observed ourselves, namely, that this form of impotence can be explained only indirectly through the neurasthenia produced by the nicotin. Nicotin, which is decidedly poisonous to the sympathetic system, is surely able to affect injuriously the sympathetic centers for the male sexual functions. Our clinical experience in some clear cases shows that after stopping the nicotin the sexual power returns speedily, which favors this supposition, while the general neurasthenic symptoms persist a long time, or remain permanently.

A similar direct injury of the sexual centers seems to be produced by the misuse of cannabis indica. (Wehle, Lailler.)

The inhibition of the libido may further be observed as an innate or acquired functional disorder. The cases not rarely described as *anesthesia sexualis* or *natura frigida*, with congenital lack of sexual desire but completely developed genitals

and healthy nervous system, are distinguished by this very lack of excitability of the psycho-sexual center.

One of our patients, whom we should classify as a case of sexual anesthesia, declared that he had never felt the need of sexual satisfaction by coitus or masturbation. His nocturnal pollutions, occurring at intervals of about a fortnight, occur without erotic dreams in deep sleep.

The extinction of libidinous impulses can also occur as an acquired functional disorder. In older works on this subject we also find long-continued abstinence from sex-intercourse mentioned as one cause of impotence. Milton even went so far as to declare that a man, who has remained always continent, can hardly reach his 26th year without becoming partially or totally impotent. This idea has of course been contradicted. We could never prove such a theory in our clinical experience. It still seems to us possible, however, that inactivity of the sexual centers of very long duration may result in a certain atony, which has the effect of reducing the libido to a mere trace.

[I need hardly mention here—I have done it in so many other places—that I belong emphatically to those who believe in the injurious effects of abstinence as to sexual power. That it also effects injuriously the normal man's psyche is now acknowledged by most unprejudiced observers.—W. J. R.]

A complete extinction of the libido and with it of the whole sexual life is occasionally observed in patients, whose histories show the wildest disregard of all sexual hygiene. The complete exhaustion of the sexual functions resulting from excessive masturbation or extreme sexual indulgence end not rarely in those sad conditions of paralytic impotence, in which every sexual pleasure is lost forever, and the strongest stimulus no longer suffices even mechanically to obtain an erection. Complete loss of sex, asexualization or "anandria" supervenes.

Withered genitals, relaxed penis, small, atrophic, "knocked up" testicles and the signs of a precocious old age in the rest of the body characterize the external appearance of the paralytic impotent. The patients complain of continual tired-



ness and weakness, disinclination for work, pressure in the head, migraine; a host of neurasthenic symptoms prove their sad condition. Milton considers the continual feeling of coldness, that at first occurs only on the external genitals, penis and scrotum, especially characteristic; it spreads later in attacks to the whole body. Van Swieten had already also made this observation.

In the older writings this form of impotence with the severe phenomena in the whole organism is referred to exhaustion from repeated losses of semen, since this extremely valuable bodily secretion is continually removed from the organism (Tissot).

Further, Hammond believes that paralytic impotence can be produced by immoderate riding, and he refers to the ancient "Scythian disease," a form of impotence believed to be produced by the frequent losses of semen resulting from excessive riding.

Hammond assures us that according to his experience impotence occurs quite commonly among the "nomadic American Indians," who are the representatives of the Scythian people on the American continent.

Milton rejects this idea, and declares it extremely improbable and only in exceptional cases possible that through riding alone the severe neurosis of impotence could be produced.

It is, however, quite comprehensible, if riding gives the occasion and impulse to immoderate masturbation, that through this sexual abuse impotence may arise.

We shall report in another place concerning the injurious effect of particular forms of sexual abuse. [See sexual neurasthenia.]

We have finally one more form of impotence depending upon inhibition of the libido to consider, that is "impotence from intellectual distraction." It is an everyday experience that intense intellectual occupation with problems of vital interest (business plans, scientific contemplation, etc.) can temporarily suppress every sexual impulse; and this is purely physiological. There are, however, well-attested cases, for example Newton,

in which the over-strain of intellectual work led to permanent impotence from complete extinction of the libido. Especially the study of mathematics has long been emphasized (by Broussais, Grimand de Caux, Martin Saint Ange, etc., and also expressly by Fürbringer) as a cause of impotence.

As we shall have occasion to remark in a later chapter, frequent observations teach us that occupation with mathematical problems, may result in pollutions, even in youth, in persons who are nervously over-excitable. The impotence, which occurs among savants of the mathematical sciences, is to be explained partly by the injurious effect of frequent seminal emissions and partly by the lack of sexual desire resulting from intellectual distraction.

*(To be continued)*

## DEPARTMENT OF SEXOLOGY

Under Charge of Dr. C. P. Oberndorf.

### SEXUAL CRIMES

**A**USTIN FLINT in an article on Sexual Crimes (*N. Y. Med. Jour.*, August 3, 1912), points out that aside from indecent exposure, adultery, incest and rape, the only sexual crime defined in the penal Law of the State of New York is sodomy. It will be noted that the statute does not include acts of sexual perversion which have their basis in sadism, masochism or fetishism.

While fetishism and masochism seldom lead to crime, sadism is a sexual perversion which leads to the gravest acts. It may be defined as a perversion in which "sexual gratification is experienced only through the domination or violence exercised upon persons of the opposite sex or the same sex, upon animals or upon inanimate objects." When such impulses are allowed free sway they may lead to acts of a horrible and revolting character, even murder. This was recently brought prominently to the attention of the New York public through the mutilation of a twelve-year-old child, almost to the point of death, by one Nathan Swartz. Flint states that it is "a question of great moment whether or not this mental condition, which exists only in degenerates and is not recoverable from, is a form of insanity which renders its subjects medically irresponsible, although they are responsible under the law," but does not venture an opinion as to the justice of such legislation.

He cites the case of Thaw as "a most instructive instance of the grafting of sadism upon true paranoia." Although Thaw, long before the time of the homicide of Stanford White had been, as was elicited through the testimony of Susan Merrill in the course of the trials, a pronounced sadist, it is not very clearly shown what bearing this homosexual component had upon the development of his paranoia.

In commenting upon Dr. Flint's article editorially, the *New York Medical Journal* states:

"It does not speak well for the general scientific attainments of American physicians that so little is known here concerning the sexual aberrations, and it is somewhat of a shock to find upon inquiry that a large medical bookstore does not stock the principal modern works on the subject. A sort of frightened curiosity is not a very scientific or dignified attitude on the part

of a profession whose duty it is to know every ramification of the human mind both in health and disease. The singular and epoch-making studies of Freud, for example, have provoked in certain quarters here either the open-mouthed astonishment of a vaudeville audience or a resentment resembling that of the narrower theologians when Darwin first threw his brilliant light upon the origin of life. The sexual instinct is, after self-preservation — to which indeed it forms a corollary — the most powerful law of nature."

#### BETTER PARENTHOOD

A high quality of parenthood, according to Thomas D. Wood (*Medical Review of Reviews*, August, 1912), involves important attributes, many of which lie well outside of the factors considered indispensable to the ordinary pursuits of mankind. For practical eugenics it is essential that the affectional basis of marriage should be preserved, but the emotional element should be guided by intelligent appreciation of all the factors necessary for parenthood. The influential values of wealth and social position should count for less in the mating of men and women, while organic health, character and devotion to high ideals should be taken more into consideration.

Moreover parenthood requires that the offspring be provided, not only with conditions for physical growth but also with standards for thought and conduct. The third function of parenthood is the perpetuation of the race.

In order that the child may be prepared for a higher parenthood, the writer advocates that education in all which relates to the reproduction of species and the duties of parenthood be given every young person. While conscientious application of general, moral and religious principles to sex-life may save many from frequent error, still such a form of protection is very uncertain. He believes that the parent is the natural and logical person to become the teacher of his child in sexual matters. He maintains that classroom instruction cannot be given until an enlightened public opinion recognizes the necessity for such instruction, and teachers are wise and tactful enough to give the guidance successfully. Comparatively few teachers to-day are capable of meeting the obligations involved in sex education.

#### TRUE HERMAPHRODITE

The following interesting condition is reported by Roy K. Smith of Seoul, as occurring in a Korean coolie (*J. A. M. A.*, Aug. 17, 1912).

Patient, aged 28, married for seven years, came to the hospital for treatment of hypospadias and the removal of a mass in the right inguinal region. He said he had never had intercourse but had had sexual desire with erections and emissions. Facial hair was entirely lacking (not so remarkable, however, as the Koreans have very scanty beards as a rule) and the expression of the face was as much that of a woman as of a man. He had a strong, muscular frame. The breasts were as large as those of a young virgin and the hips were broad. Examination revealed a penis about 2 inches long with well developed glans and corona and loose fore-skin and a penile hypospadias with the meatus about 1 inch back from the tip of the glans. The scrotum was normal. On the left side was a normal testicle (?) with epididymis and vas deferens, the spermatic cord rolling easily under the fingers. On the right was a mass which was round and firm like a testicle, slightly larger than that on the left and drawn upward toward the inguinal canal. Above this in the inguinal canal but with a distinct groove between it and the supposed testicle was a firm mass which did not give impulse on coughing and which felt like a hydrocele of the cord under pressure.

Operation with incision made over the mass showed a hernial sac which was opened and a uterus and right tube and ovary delivered. The end of the tube was not patulous but had well developed fimbriæ and two hydatids of Morgagni. The left tube seemed to be connected to the base of the bladder. There was a band running from the left side of the uterus to the brim of the pelvis on the left side anteriorly, presumably the round ligament. No ovary was found inside the pelvis. The uterus continued downward behind the bladder in the form of a firm hard cord about  $\frac{1}{2}$  inch in thickness, supposedly the remains of a vagina, for when traction was made, an external dimple between the scrotum and anus was made more prominent.

Microscopic sections of the ovary did not show any Graafian follicles, but the stroma was characteristic ovarian connective tissue.

The ultimate proof of this being a case of true hermaphroditism would of course rest on the examination of the gland left in the scrotum. The history of erections and emissions of spermatic fluid and the resemblance of the scrotal mass to a testicle, make it probable that the patient was a true hermaphrodite.

## FUTILITY OF ENFORCED EUGENICS

Havelock Ellis (whose opinions are supported by life-long studies in sex and are particularly sound), in commenting upon enforced eugenics, says in a recent number of the *Yale Review*:—

“We cannot desire any compulsory elimination of the unfit or any centrally regulated breeding of the fit. Such notions are idle, and even the mere fact that unbalanced brains may air them abroad tends to impair the legitimate authority of eugenic ideals. The two measures which are now commonly put forward for the attainment of eugenic ends—health certificates as a preliminary to marriage, and the segregation or sterilization of the unfit—are excellent if wisely applied; but they become mischievous, if not ridiculous, in the hands of fanatics who would employ them by force. Domestic animals may be highly bred from outside compulsorily; man can only be bred upwards from within, through the medium of his conscience and intelligence and will, working together under the control of a high sense of responsibility. The infinite cunning of men and women is fully equal to the defeat of any attempt to touch life at this intimate point against the wish of those to whom the creation of life is entrusted.”

## EDUCATION IN MATTERS OF SEX

With the aim of enlightening girls in the dangers and consequences of venereal disease, the State Commissioner of Health has appointed a staff of women physicians as special lecturers to conduct an educational campaign throughout the state. It is planned to hold meetings not only in the various organizations of exclusively female membership, but also to reach the women employed in various industries at their work. In addition to instruction in matters of sex, the lecturers have been directed to call attention to the frequency of carcinoma of the pelvis and the necessity of the early recognition of this condition for its successful treatment.

## MISCELLANEOUS REVIEWS

### **Late Syphilitic Erosive Papules of the Vulva 24 Years After Infection: Spirochetæ Present, Wassermann Positive.**

L. Nielsen (*Dermat. Wochenschr.*, Jan. 20, 1912), reports the case of a patient who had not been exposed to any further venereal infection after having contracted syphilis from her husband 24 years previously.

### **The Question of Fever and Other Pathological Phenomena in the Use of Salvarsan.**

Wachenfeld (*Dermat. Wochenschr.*, March 23, 1912), points out that the intra-muscular injection of salvarsan may cause fever. Thus it is stated that Wechselmann's attitude concerning distilled water does not enter into the discussion. The concentration of the salt solution deserves consideration. Disintegration of the salvarsan seems to have no significance. The author's experience consists of 3500 injections in 1600 patients. In order to investigate the matter still further salvarsan solution as well as normal salt solution was injected into luetic and non-luetic patients. In the latter the injections were of course given in the various stages of the disease. No light was thrown upon the question. Nor did the temperature of the solution seem to influence the reaction. It was suggested that particles of rubber or sulphur from the tubing were the noxious substances. Chemically pure salt, as manufactured by the various big chemical houses of Germany, was thoroughly tested. Here, too, the results were indefinite. In brief, it seems that none of the explanations for the untoward action of salvarsan holds in all cases. It cannot be predicted how either the luetic or non-luetic will respond to the drug, even under maximum favorable conditions as regards asepsis and technique.

### **A Case of Gonococcemia with a Generalized Gonorrheal Exanthem.**

M. Hodara, Osman Bey, Izet Bey, and Chevkiet Bey (*Derm. Wochenschr.*, April 6, 1912), report a case in which there was a livid eruption somewhat resembling erythema multiforme, situated upon the thorax, abdomen and face, with a few spots on the extremities. Within a day or two the eruption became generalized and several large vesicles developed containing fluid mixed either with pus or blood. As time went on the eruption increased and the contents of the lesions became fetid. Fever varying from 100° to 108° F. was present for eleven days. The vesicle dried up, with the disappearance of the fever and the erythematous patches desquamated. Gonococci were found in the blood by cultivation. Histologically the lesions presented the picture of a suppurative inflammation in the papillary body and epidermis.

## BOOK REVIEWS

*Die Harnsteine.* Ihre Physiographie und Pathogenese, von DR. OTTO KLEINSCHMIDT. Mit einem Vorwort von L. ASCHOFF, mit 3 Textabbildungen und 16 vielfarbigen Tafeln. Berlin; Verlag von Julius Springer, 1911.

In an attractive and beautifully illustrated book dealing with urinary calculi, Kleinschmidt discusses his investigations on the significance of the albuminous substructure of urinary stones. The volume is valuable not only because the various mooted questions of pathogenesis are recounted, but also for the reason that the results of careful studies on the chemical composition of the usual varieties of stone are given. It is shown that here as in the case of cholelithiasis, calculus formation may be of inflammatory or non-inflammatory origin.

Speaking of inflammatory calculi, the author voices the opinion that crystallization is the first step in their formation, the organic materials being included as the precipitation occurs. This is contrary to the current view that the proteid substance itself is the etiological factor. Indeed all of the author's experiments would support the assumption that a diffusion of albuminous substance into the crystals occurs as the phenomenon of crystallization takes place. Thus a very faint trace of albumin is to be found in the uric acid stones of normal urine, and a richer quantity of organic matter in the urine that contains considerable amounts of albumin.

The all important factor, then, in the genesis of urinary calculi seems to be supersaturation of the urine with stone-forming substances.

*Maladies de la Vessie et Penis.* Par F. Legueu, Professeur agrégé à la Faculté de Médecine, et E. Michon, Chirurgien des Hôpitaux de Paris. Octavo; 324 pp. avec 90 figures intercalées dans le texte. Paris. J. B. Bailliere et Fils. 1912.

Representing but a part of the well-known large work "Nouveau Traite de Chirurgie" edited by Denter and Delbet, this book on diseases of the bladder and penis is not written evidently, with a view to presenting an exhaustive exposition of the subject. Although pathology, symptomatology, and treatment, are considered in a scholarly manner, the sections on therapy are hardly complete enough to guide the specialist.

The medical student and practitioner, however, will find the volume a concise and very reliable means of refreshing the memory in a field that is often neglected by the internist.

*Die Behandlung der Syphilis mit Dioxydiamidoarsenobenzol* (Ehrlich Hata 606), by San. Rat. Dr. Wilh. Wechselmann, Director of the Dermatological Service in the Rudolph Virchow Hospital in



Berlin. Vol. 11. Published by Oscar Coblentz, Berlin W. 30, 1912. Price, 11.50 mk.

This volume represents a continuation of Prof. Wechsellmann's observations upon salvarsan in the treatment of lues. The first portion of the work appeared about a year ago. Of more scientific value than the unequivocal endorsement of Ehrlich's remedy is Wechsellmann's masterly analysis of the many problems in the pathology of lues and the *modus operandi* of the new drug. As regards technique it is asserted that since freshly distilled sterile water has been made the solvent for salvarsan, unfortunate reactions have disappeared. The necessity of punctiliousness in asepsis is emphasized, and Finger's unhappy experiences are hinted at as probable derelictions in technique. The matter of nerve recurrences (neurorezidive) being favored, if not actually provoked by salvarsan, is thoroughly discussed. In a successful effort to prove the drug unproductive of such undesirable effects, an exhaustive treatise upon the relation of lues to the central nervous system is introduced. It is clearly shown that syphilis attacks the brain and cord even before the secondary stage of the disease becomes apparent cutaneously. The entire lymphatic system is involved, and particularly that of the central nervous axis. Early in the disease the pia becomes affected and even in the vessels of the cerebral cortex and cord, spirochete may be found. The vascular involvement takes place from without in the perivascular lymph spaces.

The fatality alleged to be due to the effect of the drug upon the brain and cord, Wechsellmann ascribes to poorly dissolved 606 in an unfiltered solution. He finds necroses in the areas supplied by the small cerebral vessels. These necroses are probably caused by minute particles of the undissolved drug. Analogous conditions may be ascertained in the lungs and heart. In all but a few instances of nerve recurrences, salvarsan not only did no harm, but actually cured the disturbances after subsequent administrations, giving further force to the contention that syphilis, and not salvarsan, is responsible for the trouble.

Noting the early appearance of central nervous affection in lues, Wechsellmann practices lumbar puncture in all cases even remotely suspicious of such involvement, and often obtains positive Wassermann reactions in the cerebro-spinal fluid as well as characteristic cytological changes. He believes that tabes and paresis could be warded off, if energetic treatment and careful study of lues in its earliest stages were practiced. For he is convinced that the development of dementia paralytica and ataxia begins while the syphilis is fresh, and not years after an alleged cure. When meningeal symptoms are present, he advises washing out the subdural spaces with 1-1000 bi-

chloride solution and hopes to see the day when salvarsan will be administered locally through lumbar puncture.

He considers a total sterilization of the body possible only when the entire lymphatic system is flooded with salvarsan in proper concentration and at sufficiently frequent intervals. He concludes the book with his scheme of treatment. His experience covers 12,000 cases, and his arguments are richly illustrated by clinical and pathological data. The sincere student of salvarsan and syphilis can not, with justice to himself and his patients, afford to lose the value of Wechselsmann's book.

*Practical Cystoscopy and the Diagnosis of Surgical Diseases of the Kidneys and Urinary Bladder.* By PAUL M. PILCHER, M. D., Consulting Surgeon to the Eastern Long Island Hospital; Associate Surgeon to St. John's Hospital of Brooklyn; Attending Cystoscopist to the Jewish Hospital of Brooklyn. Pp. 398. W. B. Saunders Co., Philadelphia.

The scope of this work is indicated by the following quotations from the author's preface:

"The writer has endeavored to state fairly the indications for cystoscopy, and to outline its technique in the minutest detail, describing the instruments used and how to use them. Theoretical possibilities have been purposely omitted and only the practical side of the subject has been presented.

"The diagnosis of diseases of the bladder, prostate, ureters and kidneys have been taken up in separate chapters. The clinical picture is given, and the writer has tried to show the relation of cystoscopy to the various pathologic states. This part of the work has been written especially for the clinician and surgeon, so that he may apply the findings of the cystoscopist to the relief of his patient. In each section the symptoms, cystoscopic findings, direct and differential diagnosis and the indications for treatment have been given. In the last section of the book the therapeutic uses of the cystoscope are considered, and in this part the general practitioner will find reviewed those conditions in which treatment through the cystoscope has supplanted the older methods."

The value of the volume is greatly increased by 233 excellent illustrations, of which 29 are in colors.

*Syphilis from the Modern Standpoint.* By JAMES MCINTOSH, M. D., and PAUL FILDES, M. B. Pp. 227 Longmans, Green & Co.

This work is written primarily from the standpoint of the pathologist and bacteriologist, although the authors have drawn conclusions on such points as seemed to be of interest to the clinician. It is an attempt to present in one systematic whole the remarkable advances made in the knowledge of syphilis during recent years. The authors

depreciate the scientific value of observations made before the application of the experimental method and are inclined to "date the history of syphilis from 1903." The chapters on treatment are devoted almost entirely to 606, mercury being practically ignored on the ground that exact scientific knowledge of it is lacking. The work is based on researches in the laboratories of Metchnikoff and Levaditi in the Pasteur Institute at Paris, and especially in Dr. Bulloch's Bacteriological Laboratory at the London Hospital Medical College. It is a careful and comprehensive presentation of the theoretical and strictly scientific aspects of the subject, with much attention devoted to the technique of the Wassermann reaction and of bacteriological examination.

*The Experimental Chemotherapy of Spirilloses* (Syphilis, Relapsing Fever, Spirillosis of Fowls, Framboesia). By PAUL EHRLICH and S. HATA. With contributions by H. J. NICHOLS, New York; J. IVERSEN, St. Petersburg; DR. BITTER and DR. DREYER, Cairo. Translated by A. NEWBOLD, and Revised by ROBERT W. FELKIN, M. D., F. R. S. E., Late Lecturer on Tropical Diseases, Edinburgh Medical School. Pp. 181, cloth, \$4. Rebman Co., New York.

*The Treatment of Syphilis with Salvarsan.* By SANITATSRAT DR. WM. WECHSELMANN, Medical Director of the Skin and Venereal Disease Section, Rudolph Virchow Hospital, Berlin. With an introduction by PROF. DR. PAUL EHRLICH. Authorized translation by A. L. WOLBARST, M. D. Pp. 175, with sixteen colored plates, cloth \$5. Rebman Co., New York.

These two books constitute the most authoritative statement of Ehrlich's theories, and their application in the 606 therapy of syphilis and other spirilla diseases.

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## RENAL HEMATURIA

By HENRY L. ELSNER, M.D.

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**I**N no field of medicine have the newer methods made the localization of lesions more positive than in the genito-urinary tract. I refer more particularly to cystoscopy and the catheterization of the ureters. For many years the majority of hematurias will, however, be diagnosticated by the average clinician without the aid of these refinements of diagnosis and while these methods do make possible the localization of the lesion in one or both kidneys in renal hematuria, they still fail in many cases to make positive the true pathologic condition.

It is fortunate that visible blood in the urine — the symptom hematuria — rarely fails to alarm the patient and brings him to the physician without delay. The interpretation of its cause, however, is often exceedingly difficult, because the bleeding is often without subjective symptoms and without physical signs.

It is well to allow the dictum to remain in our text-books that the blood in renal hematuria is intimately mixed with the urine. This is true in the majority of cases, but there are bleedings from other portions of the genito-urinary tract, and very often from the bladder, in which the blood is as thoroughly mixed with the urine and its color and general features are not unlike the bloody urine of renal origin.

The varying appearance of the urine from time to time often becomes misleading, while convincing microscopic elements may be absent during long periods. The condition of the patient may show but slight change and symptoms may be referred to organs distant from the seat of disease.

Posner in his classic work makes the statement that the positive microscopic picture of pyuria often fails to establish

with certainty the source of the pus. This statement is certainly justified with equal positiveness in regard to the microscopic revelations in cases of renal hematuria.

The presence of blood in the urine of patients suffering from kidney lesions is more frequent than has ever before been surmised. It may be a continuous symptom or may recur at irregular periods. In some cases the intervals have been so long that patient and physician have been led to believe that the suspected serious or organic disturbance had been overcome; indeed the incident had almost faded from memory.

This sense of security after kidney bleeding, even without associated symptoms sufficient to make its cause positive, is never justified, for it may be assumed that it must always be considered an important symptom, making it necessary for the physician to watch during months and years for the final appearance of continuous symptoms and the positive evidence of organic change which follows in the majority of cases.

Renal hematuria is not likely to be profuse save as it occasionally follows trauma or is associated with calculous disease, tumors of the kidneys or tuberculosis. With the latter complication it is exceedingly rare to find large hemorrhages. In the majority of tuberculous nephritides there is an acid urine which presents positive features; there is constant pyuria, blood with abundant debris, a telltale clinical history, the presence of tubercle bacilli, which soon clinch the diagnosis. Renal hematuria *per se* does not as a rule reduce the quantity of urine secreted.

When the symptoms of the various nephritides are systematically studied we are surprised by the frequency with which, in these, blood is found in the urine. Modern surgical methods of treatment which lay bare the kidney *intra vitam* have made it possible to gain information concerning these organs; this, with our pathologic studies, has established the fact that many bloody urines which were formerly misinterpreted, and which for want of exact knowledge were known to the early writers as "essential hematuria," are due to organic change of inflammatory or vascular origin, and the term "essential" or "idiopathic hematuria" is no more justified than is "idiopathic peritonitis."

I believe this subject is exceedingly important and feel justified in bringing it to your attention with all possible emphasis.

The majority of bloody urines associated with nephritis

are not deep-colored. The quantity of blood is small and does not always justify the more dignified term hematuria.

Limited or insignificant renal change, often unrecognized by careful search, may give rise to profuse and almost continuous hematuria, while in other cases equal or even more extensive positive lesions, indeed disorganization of kidney substance, may progress without visible blood. Under the microscope there may be only an occasional blood corpuscle.

In some of these cases with marked change there may be but a single profuse hemorrhage, and no recurrence during the subsequent course of the disease.

Our studies have demonstrated the unexpected frequency of chronic tubal nephritis as a cause of blood in the urine. For the purpose of furnishing data for this paper the writer has carefully reviewed the clinical histories of 4832 consecutively examined cases of internal disease. The conclusions are as accurate as they can be made by a thorough system of cross indexing and conscientious examination of the patients, including urine analysis. We found 229 cases of chronic tubal nephritis, 14 cases of acute tubal nephritis, 77 cases of chronic interstitial nephritis, 8 cases of secondary congested kidney, and 7 cases of tuberculous nephritis in which no tuberculosis was demonstrable in other organs. Of the 229 cases of tubal nephritis blood was found in the urine of 33%. The 14 cases of acute nephritis were no exception to the rule, for in all the urine contained blood. Of the 77 cases of chronic interstitial nephritis 14% were found with blood in the urine. The urine of the 8 cases of secondary congested kidney all contained blood. Of the total 328 cases there were only 12 in which the hematuria became profuse or alarming. In four there was chronic tubal nephritis, with marked hypertension, arteriosclerosis and aortic disease, with in one case a final malignant complication to which I shall again refer. We also found among these cases with profuse bleeding four cases of gouty kidney with unquestioned interstitial change. The remaining four cases showed microscopic elements which justify the diagnosis of chronic tubal nephritis.

Rayer in 1844 called attention to the frequency of nephritis as a cause of this symptom. Askanazy presents the result of his observations from 1888 to 1903 at his clinic, during which period he accurately observed 562 cases of chronic nephritis, 35% of which showed blood in the urine. Of these 126 showed

moderate, 64 abundant red corpuscles. In considering the quantity of blood it must be remembered that the color of the urine is promptly changed by the addition of a very small quantity.

I shall consider the clinical material which serves as the basis of this paper under the following divisions:

*First:*—Chronic Tubal Nephritis, hematuria: (a) painful; (b) painless.

*Second:*—Chronic Interstitial Nephritis. Hematuria due to arteriosclerosis, change in blood pressure and localized degeneration.

*Third:*—Cases of either chronic tubal nephritis or interstitial nephritis or punctiform change in the substance of the organ or its pelvis, undiscoverable by macroscopic, often by microscopic examination, giving rise to profuse bleeding—cases which were formerly considered “essential hematuria.” These may also be painful or painless.

*Fourth:*—Cases of renal hematuria with gouty diathesis in which there may be latent kidney disease without calculosis.

*Fifth:*—Rare cases of paroxysmal hematuria in which chilling of the surface provokes bleeding.

*Sixth:*—Renal infarct causing hematuria, associated septic fever with malignant endocarditis.

*Seventh:*—Cases of acute or chronic primary infectious pyelitis, non-calculous, with moderate hematuria.

The acute forms of nephritis with hematuria are excluded from this consideration because they are easily recognized, are rich in cellular elements and casts, and present positive clinical histories. I shall not consider hematuria due to the constitutional disturbances including leukemia, pseudo-leukemia, pernicious anemia, scorbutus, purpura and hemophilia, infectious diseases, calculosis, tuberculosis or renal growths.

*First:*—*Chronic Tubal Nephritis, Hematuria:* (a) painless, (b) painful.

For many reasons a clear conception of chronic tubal nephritis demands more definite conclusions than were formulated before our recent association of clinical manifestations with pathologic study. Confusion among writers had clouded the horizon.

For the purpose of understanding this form of renal hematuria it may be assumed that there is a long continued toxemia, with final diffuse inflammatory changes in the parenchyma of the kidney which do not by any means limit themselves to one kid-

ney but involve both, though the process may be more advanced in one than in the other kidney. Secondary changes may also be more manifest in one organ than in the other, but both are positively invaded. *Chronic tubal nephritis must therefore be considered a progressive and disseminated process, of constitutional origin, invading both kidneys and associated with changes in distant organs, more particularly the cardio-vascular system.* Frequent irrational surgical interference has proved the urgent need of keeping this definition before our mental vision.

Nephritides have been frequently overlooked because the dictum that casts or albuminuria may be absent during long periods was disregarded; a condition to which Bright himself subscribed and later Senator, Israel and many others who have had large experience in this field.

It is true that but one kidney may bleed, though both organs may be equally invaded, or the two organs may alternate in supplying blood to the urine.

(a) *Painless Hematuria*:—The majority of hematuria due to tubal nephritis are painless. However, it must not be forgotten that diseased kidneys may provoke painless hematuria at one time and painful bleeding at another. These forms of painless hematuria may continue as such during weeks or months and may be finally associated with painful symptoms referable to the bladder with or without rectal tenesmus. In these cases there has either been an associated cystitis due to long continued irritation or clotting of blood in the bladder, stone or added malignancy.

We had a patient 63 years of age under observation who commenced with profuse hematuria in August, 1906. Blood pressure when first seen was 285 mm HG. There was chronic arteriosclerosis, aortic roughening and a mixed form of nephritis. Hematuria was profuse. During many months there was painless hematuria. On April 22, 1907, a perfect cast of the renal pelvis was passed per urethram *without any pain*. The mass was well organized. The presence of the clot in the vessel as it unfolded itself was at once recognized as coming from the kidney by the patient, from its resemblance to the kidney pelvis. The impress of the calices was distinct. The mold in which the clot was formed could not be mistaken. Almost a year after the beginning of hematuria, dysuria became severe; the bladder became continually tense; in May, 1907, vesical and rectal tenes-



mus were unbearable. Cancer of the bladder was finally associated with the conditions originally mentioned.

The association of cancer of the bladder in a subject with chronic hypertension, arteriosclerosis, chronic mixed nephritis (probably secondary contraction) with positive evidence of renal hemorrhage and cast formation, though rare, ought not to be overlooked.

The diagnosis of all forms of hematuria due to chronic tubal nephritis, particularly with latency during long periods, may remain unsuspected during many weeks. Even the segregation of urine from the bleeding kidney may prove misleading and may divert the physician's attention from the presence of grave constitutional disorder and may lead to surgical interference which finally proves futile because the opposite kidney is ultimately found to be diseased. Associated cardiovascular changes have often been overlooked. In many of these cases, however, repeated thorough urine analysis, which should always include precipitation by the centrifuge, will lead to conclusions that are safe and dependable. It must be remembered that albuminuria and cast formation are much more extensive when caused by organic disease of the kidney than by transitory abnormalities. Further we agree with Meltzer, who makes the statement that in making the diagnosis of nephritis reliance upon the presence of albumin and casts may indeed be fallacious but only when employing too fine methods and relying upon a single examination. In the cases which we have under consideration the continued presence of albumin with casts, with transitory or continued hematuria, particularly after the patient has rested and during the early morning hours, points to Bright's disease. It is the entire chain which we need, not the separate links.

When subjective symptoms and the microscope fail, and the bladder is suspected to be the source of bleeding, a condition which often presents in practice, if cystoscopy is impossible, the manoeuvre of Sir Henry Thompson of washing out the bladder, retaining the catheter and irrigating cautiously to note the result, will often lead to a positive conclusion. The water will be promptly tinged by vesical, later and more slowly by renal hemorrhage.

The presence of blood casts and blood corpuscles, the latter markedly changed in color and general appearance, with or without granular or hyaline casts must lead to the suspicion of renal

hematuria. While the bleeding is as a rule from one kidney, there are cases in which both organs bleed at the same time. A number of years ago I saw a case in a very old man: both ureters were blocked by dense bloodclots; finally there was anuria and death followed from uremia.

It is surprising to note how the urine in some of these cases of chronic nephritis with bleeding may mislead us by the complete disappearance of albumin, casts and blood during long periods, and hematuria may never recur, while continuous symptoms of nephritis may be slow to follow.

In old subjects it is not at all uncommon to find repeated hemorrhages from other organs associated or alternating with hematuria. This is particularly true of cases associated with arteriosclerosis. One of our leading jurists had with these conditions repeated hemorrhages; at one time from the urethra, another from the kidney; death was due to cerebral hemorrhage.

Occasionally with diabetics we have found hematuria where nephritis had been unsuspected. Askanazy reports such a case in which the post mortem showed hypertrophy and dilatation of the left ventricle, overlooked during life, with parenchymatous nephritis—the latter ran its course without a single clinical manifestation.

(b) *Painful Hematuria*:—These cases are often difficult to differentiate but are not infrequent. They are characterized by symptoms of renal colic—often leading to the suspicion of stone in the kidney. The pain usually locates the seat of the hemorrhage. The pains may be intermittent; there may be long periods during which the patient returns to apparent health while the recurrences strengthen the wrong conclusion that there is a foreign body either in the pelvis or in the substance of the kidney. Unless great caution is used surgical interference, futile and irrational, leads to death.

We have had some disagreeable experiences in the treatment and diagnosis of these cases. In one case, depending upon the clinical history of the patient, who was quite sure that he had passed masses of stone or gravel, the shadow in the skiagram, furnished by one who was an expert in the use of the X-ray, seemed convincing. He was positive that we were dealing with multiple stone in the kidney. Surgical interference was recommended and accepted. The hemorrhage in this case was the most persistent and depleting of renal origin that I had ever

seen. Under the microscope there were no renal elements to guide us; no casts, but uneven masses of crystals with characteristic prolongations seemed to strengthen the X-rayist's suspicions. The attacks of pain showed the usual radiation; there was retraction of the testicle and pain at the end of the penis. We entertained no thought of failure in this case. Our disappointment was keen when opening the pelvis of the kidney it was found to be empty. The surgeon stripped the capsule, cut into the substance of the kidney and found all of the macroscopic and microscopic changes of advanced nephritis, the cortical substance was atrophied. The removal of the organ at the second operation because of persistent hematuria did not save the life of the patient.

There are several further interesting facts in connection with these cases. Occasionally we find colic present without hematuria. The colic may not always limit itself to the same kidney. With the same pathologic changes in both kidneys it is strange that there are cases in which the colic persists in but one kidney. We have met cases in which years have passed after profuse hematuria and renal colic without marked symptoms (one case over 5 years) in which there were at first no earmarks of nephritis but in which the end was finally preceded by a long period of positive and continuous symptoms. Occasionally after exposure to cold with chronic nephritis, there is renal colic, profuse hematuria, dysuria and tenesmus. These conditions are not to be confounded with paroxysmal hematuria or hematuria, to which I referred in the fifth division of this subject. With these conditions, the previous history, cardiac hypertrophy, the microscopic and chemical appearance of the urine, in spite of the one-sided pain, make the diagnosis easy.

*Second:—Chronic Interstitial Nephritis. Hematuria due to arteriosclerosis, change in blood pressure and localized degeneration.*

It has been the writer's experience that hematuria associated with interstitial nephritis is not so profuse as with tubal nephritis. There is, however, a class of cases in which, with chronic arteriosclerosis and marked interstitial change in the kidney substance, profuse hemorrhages occur. Some of these have been aggravated by active exercise and increase of intrarenal blood pressure. Occasionally this has followed straining at stool, long continued constipation and the various forms of

intestinal indigestion associated with nephritis or with angina of abdominal origin.

In chronic interstitial nephritis with brittle and diseased arteries there may be bleeding from various sources, including the mucous membranes of the body. There may be hemorrhages either from the urethra or bladder, or from other distant organs. Hemorrhages from the kidney in these subjects are not infrequent.

In one of my cases the patient was observed during many years; the original hemorrhage was from the urethra, requiring crutch pressure for several days; the second from the nasal mucosa; the third from the kidney. Death followed from cerebral hemorrhage after a fishing trip on a hot summer day.

The first hematuria may occur in conjunction with transitory hemiplegia. Such a case has been reported by Kunsumato. I recall among my older histories of chronic interstitial nephritis some in which the fatal apoplectic attack was long postponed, though there were repeated interval hemorrhages from the kidney.

I believe that profuse hemorrhage with chronic interstitial nephritis is more frequently due to changes in the pelvis of the kidney from which the blood proceeds than to any other single cause; that the blood vessels may either rupture here or that there may be a sudden arterial hyperemia, such as Israel has found during surgical operations upon the kidney, and that, as in the brain, increased arterial tension and changed blood pressure are important factors in causing the rupture of diseased veins or arteries.

*Third:—Cases of either chronic tubal or interstitial nephritis with punctiform and limited change in the substance of the organ or its pelvis, undiscoverable by macroscopic often by microscopic examination, giving rise to profuse bleeding—cases which were formerly considered "essential hematuria." These may also be painful or painless.*

This class of cases has engaged the attention of clinicians and pathologists during many years. The fact that hematuria, due to slight or undiscoverable causes, may be long continued, painful or painless, is positive but puzzling. An enormous literature has sprung up dealing with these cases. In looking over the literature within my reach, in spite of all that has been written to justify the term "essential hematuria," I find but five cases which are well authenticated in which there were no pathologic

changes at all or these were so scant as to have been considered insufficient to explain the cause or source of the bleeding. These cases are reported by Klemperer, Schede, Caspar and Schenck.

*Klemperer's case* was that of a male 22 years of age, who had always been healthy and had no hereditary tendencies. The year before coming under Klemperer's observation he suffered for three months with bloody urine. This disappeared, after nine months there was recurrence. The cystoscope revealed blood coming from the left ureter. The urine was normal save for the addition of blood. After hematuria had continued for four months nephrectomy was done; the whole kidney was carefully examined by the best authorities and pronounced absolutely normal. Five years later the blood had not recurred.

*Schede's patient* was 50 years of age. He suffered from hematuria for several months, with marked anemia. The underlying conditions were unexplainable. After a suprapubic cystotomy the ureters were catheterized, the source of the hemorrhage discovered and the kidney removed. It proved to be perfectly normal.

Caspar rehearses the history of seven interesting cases of so-called "essential renal hemorrhage," or, as he says, "bleeding from healthy kidneys." The consideration of his material strengthens him in the conclusion that the majority of these mysterious cases are due to nephritis, though clinical manifestations may be entirely absent. He emphasizes the fact in connection with the study of these cases that nephritis may persist during many months without casts or albumin during periods when there is no hemorrhage. He reports two cases, however, in which the microscope failed to show evidence of nephritis and he is unable to explain the cause or source of the hemorrhage. He makes the statement that in spite of the closest investigation the condition of the kidney fails to explain the bleeding.

In the two unexplained cases of Caspar there were small circumscript herds of round cells, occasional contraction and thickening of single glomeruli in otherwise healthy kidneys. There were no diffuse changes.

Schenck has reported a case in which he says that the cause of the hemorrhage after the removal of the kidney remained a complete mystery. Microscopic examination of the tissue removed showed it to be perfectly normal; there was no bacteriologic infection. In spite of this fact it would seem that his conclusions are rational, for he says that it would seem far better

to put these cases aside as yet unexplained than to assert that an anatomically sound kidney could cause profuse hematuria.

It seems to the writer that it is not safe to conclude, with positive evidence of bleeding from one or both kidneys, and even limited or apparently insignificant pathologic change, that such organs may not in some way undergo transitory vascular changes or that there may not be intra vitam limited arteriosclerosis in young or old subjects or other hidden changes which lead to hematuria.

A number of cases of chronic interstitial nephritis, in which there has been continued hematuria and pain limited to one kidney, have been associated with occasional plaques in which the kidney substance was replaced by eosinophilic cells. Sultan has reported such a case and this unusual find has been thoroughly considered by the author, who has tried to explain the origin of the unusual cell deposit without satisfactory results. These cases emphasize the multitude of anomalous conditions which may lead to renal hematuria.

The hematuria of pregnancy, heretofore unexplained, has been occasionally found to be due to varices of the kidney, the pelvis mainly, or there may be the same condition of bladder veins (Vogel).

The mere fact that after opening a kidney during life in these reported cases nothing abnormal was found does not prove that the organ in some of its tissues may not be diseased; it would be difficult for the pathologist to assert beyond peradventure that he had gained a full knowledge of the condition of all included elements. When we consider these cases clinically we forget that the ravages of time are not limited to one organ; we are not to conclude, on account of a feeling of well being, that as the hair is tinged with gray or our crystalline lens grows flatter internal and vital organs are not involved *pari passu* in this retrograde process. "All mortal things are subject to decay." We react differently according to our inherent or acquired tendencies. Few it is certain live beyond the 50 year period with absolutely normal kidneys. For all of these reasons let us oppose the use of such terms in medicine as "essential hematuria," for they lead to conclusions in too many cases which work hardship to patients and make medicine less scientific.

*Fourth:—Cases of renal hematuria with gouty diathesis in which there may be latent kidney disease without calculosis.*

In a number of these cases the hematuria is the expression

of an acute exacerbation of gout. It is in these cases that there have been no preceding evidences of nephritis and the history following the hematuria *immediately*, would hardly lead one to suspect latent disease. Occasionally such hematuria has been either associated with gouty arthritis or an acute gouty indigestion; usually associated with obstinate constipation. If the urine be carefully examined it will be found to contain besides the blood an occasional hyaline cast; its specific gravity is between 1015 and 1020; it is excessively acid and under the microscope shows a number of uric acid crystals with uneven prolongations.

Profuse hematuria associated with the gouty diathesis may be the first of a long train of symptoms which characterize chronic interstitial nephritis. My experience with renal hemorrhage associated with gout has led me to the conclusion that in the majority of cases, if the patient does not die of intercurrent disease, he will show positive evidences of chronic nephritis during many months before the end.

*Fifth:—Rare cases of paroxysmal hematuria in which chilling of the surface provokes bleeding.*

The history of these cases is intensely interesting. I shall never forget the impression which was made by my first of these cases, and shall present an abstract of its history:

A man 43 years of age, who had considered himself perfectly well, marched in a funeral procession through the snow on a very cold day and stood in the cold at the cemetery during the burial. A slight chill was followed by a desire to urinate. The urine was bloody; was voided without pain. It continued bloody during the following 12 to 24 hours. There was no examination of the urine at the time of this hemorrhage. Following this occasion whenever this man was chilled or his feet became cold he had a slight rigor followed by hematuria. During the summer months, for from 10 to 12 years, there was no hematuria. The urine examined at the time of the second hemorrhage gave no clew to the source of bleeding. The urine between attacks was normal until these symptoms had recurred during 12 years. At the end of this time hemorrhage recurred on slight cause. Slight chilling of the surface during cold autumn days was sufficient to provoke the bleeding. After this period the symptoms of chronic tubal nephritis were continued and between 16 and 17 years after the first hematuria the patient died of uremia, preceded by a long period of renal dropsy;

*Sixth:—Renal Infarct causing hematuria, associated septic fever, with malignant endocarditis.*

In all cases of paroxysmal hematuria, particularly those associated with septic or intermittent fever, in which there is no clear cause for the bleeding, we must remain suspicious of associated malignant endocarditis and renal infarct. During the past 12 years I have seen three cases of hematuria in which the bleeding was due to renal infarct and in which there had been no previous suspicion of malignant endocarditis. In one of these cases hematuria recurred at varying intervals during six months preceding death. The patient, a boy, finally died of cerebral infarct. The post mortem proved the presence of renal infarct, which was found sterile, while in the splenic and cerebral infarcts pneumococcus infection was demonstrated. The endocardial vegetations were also found to hold the Fraenkel cocci.

*Seventh:—Cases of acute or chronic primary infectious pyelitis, non-calculous, with moderate hematuria.*

I refer particularly to the acute cases of primary pelvic infection, in contradistinction to calculous pyelitis and ascending pyelitis often due to gonococcus infection. These cases have a characteristic history, including temperature curve; are most frequently found in women, often during pregnancy and at the menstrual period, in which the renal pelvis is directly infected, usually by the bacillus coli communis, occasionally by other pathogenic bacteria, including the Friedlander and Fraenkel pneumococci. Even paratyphoid bacilli have been found by Lenhartz to cause this form of pyelitis. These cases are usually associated with obstinate constipation. Bladder symptoms are as a rule absent. There are, early in the course of the disease, all of the symptoms of an acute infection. The infection seems to be direct and not of the ascending type. The temperature is almost pathognomonic; this is high during from 3 to 4 days, then a period of remission with an almost normal temperature for two or four days and final exacerbation. These cycles of fever with periods of remission may continue during a considerable period, or in a few cases the course is run in from 8 to 14 days. Some of the cases become chronic; the majority are never diagnosticated. The disease is usually right-sided; the kidney in thin subjects is palpable, found to be slightly enlarged and exquisitely tender. In occasional cases there are sharp pains which radiate upward and downward, usually along the course of the ureter, which may be associated



with increase in the quantity of blood. The bacteriologic and microscopic examinations of the urine give positive data. Blood is found in the majority of cases—moderate hemorrhage tinging the urine light red. Frequent, profuse hematuria is rare. Lenhartz has recently given a classic resumé of our knowledge of this infection.

Finally a few words on the causes of renal colic or painful hematuria in cases such as have been considered, a subject which has been a source of fruitful study and frequent controversy. The Germans have been particularly interested in this subject, and it seems to me that in determining the cause of the pain they have often been guilty of one-sided reasoning, for each individual observer has insisted upon a *single* view to explain the recurring paroxysmal pain in *all* cases. It appears to the writer that the pain in some cases may be attributed to nature's effort to overcome an obstruction in the ureter or pelvis of the kidney, due to clotted blood or organic narrowing, hence a foreign body, just as pain is caused in renal calculosis.

Senator believes that in some cases there are perinephric adhesions which are a source of pain, particularly when associated with acute paroxysmal congestion, such as Israel has recently described.

Angioneurotic edema, with clotting of blood in the kidney, pyelitis associated with chronic nephritis and acute exacerbation, increasing intra-renal pressure, may also serve to explain the pain in occasional cases. Diseased kidneys, however slight the change, show predisposition to acute engorgement. If the clinician will palpate the kidney during the acute period of hemorrhage, pushing it forward from the loin toward the hand placed on the anterior abdominal wall, he will often find the organ exquisitely tender and in some cases cause radiation of pain down the ureter much like the pain of renal colic.

With regard to the source of the blood, recent experiences corroborate Askanazy, who has established the fact that in one quarter of the cases of hemorrhage in the various forms of nephritis the pelvis of the kidney furnishes the blood. This not only explains the reason for the pain in some cases but localizes the source of hemorrhage. Unquestionably increased arterial tension has much to do with causing renal hemorrhage in nephritis.

It remains problematic whether hemorrhage from the kidney alone is ever due to hemophilia. Our experiences corroborate

the conclusions of those who deny the possibility of this occurrence without bleeding from other organs, deep or superficial.

Many cases of renal hemorrhage, whether associated with pain or not, will remain unexplained. However, in reaching conclusions it will be wise to extend our search beyond the kidneys themselves; to take urine, heart, blood vessels, blood pressure and the background of the eye into consideration and wherever possible couple the knowledge which we gain from a thorough consideration of these organs with that which is revealed by the cystoscope, though we are not to be disappointed if occasionally cystoscopy and segregation of the urine fail to supply convincing data.

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Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

### HEMATURIA WITH CASE REPORTS\*

By CHARLES M. HARPSTER, Toledo, Ohio.

Genito-Urinary Surgeon, Toledo Hospital.

**H**OW can we better spend a few minutes of this Section's time, over which it has been my privilege to preside as your chairman, and as your secretary for four years, than in the consideration of a few of the advances in renal surgery? It is with considerable hesitation that I present in my feeble way a few points gained from my limited experience. I wish at this time to thank you all for the honor of presiding at this meeting.

If we can by our efforts as urologists and surgeons instill into the minds of our colleagues the necessity of scientific examination with the cystoscope and tests for renal sufficiency, and the great advantages to be derived from their skillful use, we will then be better able to save from the grave many cases that otherwise would perish.

I think no one better than the writer appreciates the fallacies that must of necessity arise in this field of human endeavor, but we all must surely realize that the constant advances being made are bringing renal and bladder surgery nearer the plane of an exact science.

The diagnosis of these conditions is a most fascinating study. Renal tuberculosis presents the most interesting phase of the nephritic diseases, on account of the fact of its being frequently overlooked. Albumin found in the urine is attributed to Bright's disease, the physician's mind is relieved on this score,

\* Address of the Chairman of the Section on Dermatology, Proctology, and Genito-Urinary Surgery, Ohio State Medical Society.

and the patient left to die of perhaps a single tubercular kidney, in the first place, which might have been cured by simply enucleating the hopelessly diseased kidney.

It is commonly thought the diagnosis of tubercular kidney is extremely difficult. In some cases this is true. It is difficult for an expert to diagnose a tubercular kidney in its first stage. It is often difficult for those unaccustomed to the use of the cystoscope and ureteral catheter to diagnose the disease in any but the advanced stage.

The condition of each kidney should be examined into carefully, after a lesion has been determined upon. Is it unilateral or bilateral? This has no interest to those who are only to treat the case medicinally. If operation is considered you must know which kidney is tubercular or diseased, and what the condition of its fellow is.

The above mentioned points have been so frequently dwelt upon in our literature that it seems repetition for me to dwell upon them, but the more I see of this class of cases the more I am convinced that these scientific methods are not in very general use. We appreciate the difficulty of mastering the technic of cystoscopy, and counsel that only those skilled in the use of this instrument can be of avail to us in the finer points of diagnosis. It is with considerable pleasure that I can say we are able to have with us at this meeting many experts along this line of endeavor, who can tell you much better than I of the rapid strides in this instrumentation.

The name of the perfecter of one of our best instruments, Prof. Max Nitze, of Berlin, Germany, will go down in genito-urinary history as the master mind.

Hofmann's first patient recovered complete health after resection of the tuberculous right half of a horseshoe kidney. The second patient was also cured by extirpation of a tuberculous wandering kidney. The symptoms in this case had been attributed to the movability of the kidney and catarrh of the bladder but the cystoscope revealed pus issuing from one ureter and the presence of small ecchymoses in the otherwise intact bladder mucosa. Pain when walking, subsiding when seated, was another symptom which had been referred to the wandering kidney.

The perfecter of that scientific urethroscope "Goldschmidt" will become famous when his work and instrument are better understood.

A calcareous mesenteric gland had produced symptoms strongly suggestive of a stone in the right ureter. The presence of the gland was confirmed by the X-Ray, but owing to its large size, the ureter was catheterized with a leaded catheter, showing the line of the ureter to be 3-5 of an inch from the gland. Differential diagnosis between a concretion in the appendix, a calcareous gland, a phlebolith or some similar condition can sometimes be made before operation.

Some form of nephritis may be responsible for the bleeding from the kidney in some cases. Tuberculosis, renal calculus and ureteral calculus cause most cases of bleeding. The definite cause of any obscure renal or cystic hemorrhage should be diligently sought for.

A diagnosis of essential hemorrhage, hemorrhagic nephritis, etc., should not satisfy us in cases of persistent renal hemorrhage; 1-3 of all cases of essential hematuria are probably tuberculosis of kidney.

The onset of hematuria is often significant as to its cause. If it follows a renal colic or violent exercise and disappears with rest, it speaks for stone. If associated with pyuria or dysuria, it points to tuberculosis. If it occurs suddenly and is very profuse, it indicates the presence of a tumor. As a symptom of chronic nephritis hematuria is not rare.

Cystitis is an error-breeding, mind-relieving term. Were it not for the rare exceptions, we might say there is no such condition. I would always be a sequel, a symptom, and not a condition mentionable by itself. Many hundreds are suffering because we are satisfied to tell our patients what they already know, namely, that they have cystitis. As well tell our appendicitis cases that they have the bellyache or our gonorrheal salpingitis cases that they have female trouble. Our patient's knee is tender, swollen, hot and red, but synovitis does not diagnose the case. It may be gonorrheal, tubercular, or of spinal origin.

I wish to repeat that when abuminuria occurs as a manifestation of the escape of blood into the urine its surgical importance is marked, and the probable point of entrance of the blood important. Such an escape of blood may occur from a renal or cystic growth, from a stone in the kidney, ureter or urinary bladder, from some inflammatory condition, or from a simple congestion of the kidney, and finally from some traumatism of bladder, urethra, or kidney.

Wose says, "Although blood in the urine may be the essential symptom to relieve, for which the patient presents himself, it behooves one always to make searching inquiries into the history of each individual case, the habits, and the mode of life." The urologist, as others, demands a thorough physical examination. He delves deeply into the condition of the eyes for evidence of retinitis. He examines the thorax, sputum and glands for tuberculosis, the abdomen and pelvis for possible sources of malnutrition, the heart and arteries for conditions causal or resultant of the renal, ureteral, or vesical inactivity. No thought can be so narrow as to overlook the value of palpation. For of all regions of the body the urological system offers the best opportunity to the developed sense of touch to interpret the possible pathologic lesions that are there encountered. No detail should be too small.

Before such instrumentation, as is employed in cystoscopy, the urine is carefully and thoroughly examined. This stands to reason, especially so in the hemorrhagic disorders, which are to-day under discussion. The mere passage of a catheter into the bladder may change the entire picture of the case, and alter any conclusions that otherwise could be formulated. In order thus to solve the enigma of the presence of blood in the urine, one determines the evidence at hand, and proceeds by means of exclusion. Should the bleeding arise in the urethra, one has recourse possibly to observe such by means of the urethroscope. In vesical hemorrhage the cystoscope is used. In case of renal hematuria the cystoscope is armed with a catheter and the ureter or ureters are thus catheterized.

The diagnosis of the cause of blood in the urine from optical inspection of the specimen passed is limited, and has but little value. One is told that blood coming from the bladder is bright, while that from renal origin is dark or brownish in appearance due to altered blood mixed with urine. The cystoscopist, however, finds bright red bloody urine passed from the kidneys as well as from a bladder or prostatic lesion. He knows that a brownish colored urine may come from a new growth, stone, or hypertrophied prostate in the bladder as well as from the kidney. This latter change in the blood is due to an infection with the bleeding. Hemorrhage bright red, little or profuse, may arise from the urethra either anterior or posterior. Again there may be hemorrhage from the prostatic urethra which fills the bladder

with blood and clots, and can be erroneously classed as vesical. Clots have little significance. It is claimed that worm-like clots, dark in color, are formed as casts of the ureter from blood due to renal origin. Such, if found, become difficult to differentiate from clots of larger dimensions, especially when bleeding is profuse. The character of the bleeding, likewise, leads one astray. The urine may be bloody during the entire act of micturition in prostatic, vesical and renal hematuria. This may be intermittent, and follow any unusual exertion such as that due to walking or riding. It then becomes difficult to classify such from a vesical calculus. Terminal bleeding also may be found at the end of urination in any lesion involving the neck of the bladder as prostatic, vesical tumor, or that due to ulceration about the trigonum.

The true, accurate, and only absolute method to determine the source of the blood in the urine from the bladder and kidneys is the cystoscope. So positive is this method of investigation that one may need no other aid, not even the notation of clinical symptoms to decide the origin of the bleeding. This implies, however, that the cystoscope should be artfully and masterfully employed by one trained to recognize the lesions as they present themselves. He should be thoroughly familiar with the complexities of the instrument he uses and the delicacy of the technique of vesical, ureteral and renal exploration, to obtain positive results. The differential diagnosis is then made by the eye, and not deduced by any logical conjectures to which these urological symptoms are many times disposed to lead one.

Judging from numerous statistics, hematuria is the earliest symptom of renal cancer, whatever the particular variety. It appears, however, to be less frequent in adenoma. It is only accompanied by pain in one of every five or six cases.

When blood makes its appearance in the urine the growth has already reached a somewhat advanced stage, so that hematuria cannot be said to be an early sign of cancer. Hildebrand, however, records cases in which hematuria antedated the renal tumor by five and twelve years.

There is no relationship between the frequency and severity of the hematuria and the size of the tumor or its position—central or peripheral.

The hematuria commences insidiously, it supervenes without obvious cause, by day as well as by night, during periods of repose as well as during exertion. The patient suddenly becomes

aware that he is passing bloody urine although the previous micturition was free from any trace thereof. In some cases the appearance of the blood is preceded by renal pain, by a feeling of weight, possibly even by uretero-renal pain in cases where the attack is associated with the passage of clots formed in the ureter. In some instances walking seems to have provoked the bleeding.

The hematuria lasts for a variable period, weeks, possibly months or even years. As a rule the attacks recur more frequently as the disease progresses.

Renal calculi give rise to various accidents, according as they are aseptic or are associated with infection. In some cases they remain absolutely latent and their existence is only revealed post mortem.

Infection is the outcome of accidental causes and does not always takes place. Other sequelae of the presence of calculi are more frequent; nephritic colic, for instance.

Premonitory hematuria is not influenced by rest. Not as a rule very profuse, it may in some cases become serious by reason of its copiousness, its continuousness and its recurrence. It, however, does not invariably accompany nephritic colic.

There may be pain in the renal region independently of the passage of the calculi, due to congestion or the entrance of the calculi into the ureter. The kidney is not very sensitive in the absence of distension. Dressings, the contact of instruments, and injections made into the opened kidney do not give rise to any pain worth speaking of unless the injection enters the ureter. Examination of the kidney by bi-manual palpation is not very painful after an attack of renal colic.

Smooth calculi do not irritate the walls of the ureter and may work their way into the bladder without giving rise to pain. The ureter, like the kidney, does not react much to mere contact with a hard body but it is quite otherwise when their cavities are distended either by the presence of a calculus or a clot or from a kink of the ureter.

Some patients who have long been suffering from pyuria only experience pain quite late in the history of the case, and this pain cannot be provoked by pressure or bodily movement. In other instances we get bilateral lithiasis with pain on one side and not on the other.

Sometimes there are repeated attacks of nephritic colic so protracted and so severe as to necessitate surgical intervention, yet on operation no calculus is found but only renal distension

due to kinking of the ureter or stricture. In some cases of floating kidney with retention we get nephritic attacks suggestive of the presence of stone, and in such cases radiography may be of great assistance.

Even the most marked attacks of nephritic colic do not really justify the diagnosis of stone of the kidney or ureter. They may be due to kinking of the ureter consequent upon displacement of the kidney or to a band compressing that canal. In these cases the kidney becomes enlarged coincidently with the attack and returns to normal as the attack subsides.

To sum up, radiosopic examination yields the most conclusive information and in doubtful cases it is to this mode of exploration that we must have recourse. Cystoscopy and radioscopy are paramount in diagnosis.

A man 52 years of age presented himself with a history of profuse hematuria for about three weeks. Cystoscopic examination showed a large papilloma surrounding the neck of the bladder. For several days preceding the operation urination was not possible without the use of the catheter. 1-5000 adrenalin solution somewhat stopped the bleeding.

A number of diagnoses had been made, as rupture of a blood vessel in the bladder, rupture of a blood vessel in the kidney, hemorrhagic nephritis, etc. This growth I removed at St. Vincent's Hospital, Toledo, Ohio, fulgurated and the site of the growth several times at different days through the suprapubic wound. Recovery was uneventful.

Bolognesi reports a patient (Page 1689, *J. A. M. A.*, 1911), a bipara, aged 29, with symptoms suggesting renal tuberculosis in a wandering kidney. The kidney was removed, but notwithstanding the tuberculous bacteriuria, only slight lesions were formed in the kidney, and they were not tuberculous.

The case confirms anew the fact that tubercle bacilli can filter through the almost intact kidney parenchyma, with merely a minute non-specific lesion. The tuberculin reaction was positive, but there is no evident tuberculosis in any organ. The patient is in good health.

We must not, however, rush at once to nephrectomy as the above case will justify this statement.

Albarran has demonstrated post mortem the kidney pelvis swarming with tubercle bacilli without any lesion of the substance of the kidney itself.



## THE RELATION OF PROCTOLOGY TO UROLOGY.

By GEORGE B. EVANS, Dayton, Ohio.

**"T**HE tendency to reason is so great in medicine that one hesitates sometimes to write of obscure affections as dependent upon local diseases lest he should have been mistaken in his own conclusions and his cures have proved coincidences, or lest he should lead those of less experience to jump at unjustified diagnoses, and thus do more harm than good."

I desire to refer in a general way to the important and intimate relationship that exists between the urologic and proctologic organs of the body, both male and female. I desire to emphasize the fact that often when some area of the genito-urinary tract is traumatized the rectum and sigmoid or a part thereof, suffer from the same reflexly.

I beg to recall to your minds, first, the intimate gross relationship of these parts and organs. All of these organs are within a small space not greater than your hand can span, and between either of them there is very little appreciable space; their support and normal functions are dependent partly upon each other. The same serous membrane attaches to each, the same ultimate arterial and venous blood supply, and the same cerebrospinal and sympathetic nerve supply is distributed to both. The normal blood distribution and recurrent flow are largely dependent upon the normal position and gross relationship of these structures. The hypogastric ganglia of the sympathetic, with its numerous diverting cords, the sacral ganglia connecting the lumbosacral and sacral cords so intimately associated anatomically, must also associate the functions of the organs to which their various ramifications are distributed. The sympathetic ganglia and the nerves are intimately connected with the cerebrospinal nerves by both white and gray fibers. The white fibers which pass from the spinal nerves to the sympathetic ganglia are continuous with those of communication between the ganglia. The gray fibers pass from the ganglia to spinal nerves. So intimate, therefore, is the relationship existing between these two systems that they really appear to be parts of one great whole. The pelvic portion of the sympathetic, consisting of ganglia, connected by interganglionic cords and communicating by other cords with the sacral ganglia and nerves, to all of which intimate association I would add the vast peripheral inosculation, has an intri-

cacy and importance which is beyond our full comprehension or appreciation.

The pelvic plexus of the sympathetic supplies the rectum, bladder, vesiculæ seminales, vas deferens, prostate, vagina, uterus and ovaries, with the surrounding parts, muscles and skin, and vessels, while from the cerebrospinal the pudic alone supplies the rectum, perineum, vagina and external genitalia, including muscles and integument. So, arriving at this knowledge of the gross anatomy with reference to the vascular and nerve supply, I should think my grounds well taken in this paper.

From a clinical standpoint we have noted that even from a slight disorder of the intestinal tract there may be a reflex pain, more or less severe, referred to the urethra or bladder, or both. Diseases of, or irritation in, the rectum or sigmoid are so frequently associated with the diseases of the urethra and bladder, sometimes as the cause and sometimes as the effect, that no one who has had a large experience can have failed to observe it. There is no portion of the body that may not be affected functionally or sympathetically by disease of the rectum, bladder and urethra, especially the prostatic urethra. The symptoms are one and the same, and it is often with the greatest difficulty that we can make out where the pathological lesion lies. The propinquity and anatomical relation between these parts would, a priori, lead one to anticipate a close relationship in their pathological affections. Traumatisms of one are likely to invade the other; inflammations are liable to extend from one to the other directly, or through their lymphatic connections; the intimate relationship between the nerve and blood supply of the bladder and rectum naturally lead to distinct impressions upon each other when either is affected. So closely are they related in every way, especially in the male, that one can never say he has covered the field of diagnosis in any given case until he has examined the rectum, urethra and bladder.

To demonstrate this, pull upon or traumatize a plica and note the reflex to the others; in obstipated subjects note the pain reflexly in the prostatic urethra and bladder. Again traumatize the urethra by the passing of a sound, or irritate the same by the application of too strong a solution of silver nitrate and note often the pain in and spasm of the muscles of the rectum. Let this irritation or traumatism or source of nerve disturbance, be the cause what it may, or where it may, continue and irrepar-

able damage is sustained by that nerve; hence it is that in the case of a nervous subject, rendered so by inflammation or irritation of either the bladder or rectum, repair of the damaged part or organ is not adequate to a cure; the other has suffered, and especially have the nervous elements supplied thereto, and to such an extent as to render a relief of all symptoms a result *obtained only in time* and by careful, systematic and painstaking treatment. I have had patients return to me after some simple rectal operation, complaining of not being cured; proctoscopic examination showed the parts normal, but in the removal of the proctoscope or by digital examination there was an outcry of pain, and careful examination revealed the trouble in the prostate urethra or the trigone of the bladder. How often has cystitis developed after a hemorrhoidal operation, subsiding for a time, only for the infection to be rekindled. Again I have seen an acute proctitis follow a clamp and cautery operation for hemorrhoids in a patient who had had gonorrhoea several years previously, but had never been cured of the same.

Another point to be considered is the sympathy felt when the bladder becomes the seat of the disease. How often women apply for treatment of some rectal or uterine trouble, when the primary trouble is in the vesical neck or trigone. The bladder in the female especially is liable to infection, and more often suffers disease by reason of continuity of its mucous surface with that of the vulva and vaginal outlet than, I believe, is generally conceded.

I have also seen a gonorrheal proctitis and stricture follow a hemorrhoidal operation; simply because of the social standing of the patient the surgeon was misled.

It becomes an easy and routine practice to prescribe some one of the urogenital remedies to women complaining of vesical symptoms; and that too without examining the vesical or urethral interior. How much better it would be by means of the ordinary cystoscope to examine the entire interior of the bladder and the urethra, and then we would not be groping in darkness and ignorance.

Another thought worthy of our consideration is the frequent association of carunculae in the meatus urinarius in women suffering with hemorrhoids. Both should be enucleated at the same sitting if we expect ultimate successful results. A woman should never be operated for hemorrhoids without examining the urethra

and bladder, and the same may be said with reference to the male; for the urethral stricture, prostatic disease, or cystitis from whatsoever cause will hamper, if not entirely thwart, the means used for the relief of the symptoms.

Ulceration on the distal side of the rectal valves, in several cases under my observation, has caused so much serious trouble that even pus tubes have been diagnosed and removed; and even the appendix has been assaulted and removed; and still the seat of trouble was not found. Afterwards a simple valvotomy by means of the Pennington clips, without anesthesia or pain, by simple pressure necrosis removed the obstruction — drainage was secured thereby and all previous pain and symptoms vanished.

Reflex pain is a subject too vast to be considered in this paper. The medical literature is full of instances of remote neuralgic pains relieved by operations for fissure or ulceration of the rectum, stricture complicated by ulceration on the distal side, cryptitis, or inflammation of the crypts of Morgagni. Many a neurasthenic, careworn woman, suffering with pelvic pains referred to her uterus and ovaries, has been relieved of all these symptoms by the cure of a rectal ulceration, fissure or some of the diseases mentioned. These conditions act not only in a reflex manner, but by causing spasms of the levator-ani muscles, which surround the vagina and neck of the bladder, and consequently distract these parts when in a state of spasm, they act also in causing constipation and its local or physiological sequences. "Worse things can happen a patient than to live to undergo a second operation." At the same time much worse can happen to the surgeon's reputation than to do an operation with the assurance that it is going to relieve, and to have the patient recover without any relief, consult another surgeon and be cured by some minor operation that might easily have been cured at the first seance.

The question is one of complete diagnosis — the determination of what conditions are causing the symptoms, and whether there be one or more pathological conditions, leads to radical and effective work at once. We must differentiate between actual and reflex pain; the determination of the seat of the pathology is the one desideratum, to learn the cause of our patient's complaint, and then usually our course of action is clear. A common disease reflexly is the shooting pains down the legs. This is especially true of disease of the verumontanum — ulceration of the prostatic urethra and anal fissure. Hilton has said that such

pains in the left leg are almost pathognomic of fissure or rectal ulceration. His experience must have been coincidences, for in my own experience I believe I have seen just as many pains in the right as left leg, as well as the back; and as we have fissures in the anterior, as well as the posterior commissure, I can see no reason for this assertion; furthermore, I cannot see why leg pains any more than back pains should be attributed to ulceration, or disease of the verumontanum, or even trigonitis, and yet with the above pains I have often found the above diseases. For an answer we must go back to the beginning of this paper and find it in the gross anatomy of the parts. We should never, therefore, give an opinion as to the cause or origin of such pains until both sets of organs have been carefully examined. Micturition is affected by traumatism, acute inflammation, fissure, ulcerations, and large tumors of the rectum. The influence of the absorption of putrid matter from the intestinal canal; the influence of diseased prostatic urethra and bladder upon the nervous and mental system has long been pointed out, and it is becoming more and more acknowledged by neurologists at the present day. Hypochondria and melancholia are in many cases nothing more than the result of such absorption, and the disease of the urinary tract, and as this proceeds the resistive power of the patient decreases, the pelvic pains are magnified, the interference of these functions appears, and the whole category of nervous exhaustion and true melancholia develops. The cities are full of tired, depressed, melancholia men and women who are being treated for liver and kidney troubles, for backaches, and pelvic pains, which are due in very many cases to fecal stasis, imperfect emptying of the bowels and other rectal conditions; and along with this condition we have in the male the same urinary stasis, imperfect emptying of the bladder with the associated conditions.

Another thought of special interest to me is the disease of the verumontanum. Few surgeons, and not many specialists in urology, have given this organ much, if any, attention. The text books on urology say very little, if anything, on the subject. Why? I do not know. The verumontanum is a protuberance an eighth of an inch or more in height, arising from the floor of the prostatic urethra. When diseased the verumontanum varies in appearance. It is often very red like a raspberry, bleeding upon the slightest touch. This redness becomes more fiery according to the degree of inflammation. The etiology of disease of the ver-

umontanum is generally gonorrhea; and yet excessive masturbation or coitus, prolonged sexual stimulation without gratification, as in hugging, withdrawal, or coitus interruptus, may cause it without venereal disease. The symptoms which may be produced by disease of the verumontanum are many. Frequent urination, pain in the urethra, the prostate or the neck of the bladder; a bearing down feeling and burning in the rectum, and frequent nocturnal emissions attended by the most severe pain. Two of my patients have suffered thus. A very frequent sequel of this condition is impotence. It is attended by severe mental depression, bordering on melancholia, and unless relieved tends to end in grave sexual neurasthenia. Such was the condition of one of my patients who had been treated for some rectal trouble for months by a prominent surgeon. Proctoscopic examination was negative. A urethroscopic examination revealed a large, juicy, inflamed verumontanum. I used applications of ten per cent. nitrate of silver — pain severe, result negative. I then used the German crayon of silver nitrate on an applicator, expecting severe pain but was agreeably disappointed, as he had very little pain following and six months afterwards reported himself absolutely well. This is simply one of the many whom I have treated with almost startling results.

The problem which presents itself to us is the differentiation between these conditions, the seeding out and determining whether the rectal, sigmoidal or genito-urinary tract, or the other pelvic organs are at fault, and to do this there must be a passing of the specialties. The proctologist must be a urologist, at least in diagnosis; and the proctologist and the urologist must be a gynecologist. The gynecologist who aims at perfection must be a proctologist and a urologist if he would be true to his clientele.

Thus you see we come to the one important thought in this paper — the highest development of surgery and medicine — the perfect diagnosis of our cases.

Contributed by the Author to THE AMERICAN JOURNAL OF UROLOGY.

## GONORRHEA IN AN ARTIFICIAL URETHRA; NOTE ON THE MECHANICS OF GONORRHEAL INFECTION IN THE MALE.

BY G. FRANK LYDSTON M. D., Chicago.

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THE consensus of opinion regarding urethral gonorrheal infection in the male is that the infection begins at the meatus, primarily involving perhaps the mucosa just within the orifice and extending by contiguity backwards. In my text book and in various of my monographs I have expressed the opinion that the "bulb-suction" action of the deep urethral muscles and prostate during the act of ejaculation of semen, and possibly during coitus, draws the infectious secretions into the urethra for a variable distance — a distance much greater than is generally supposed. This "suction" action of the deeper parts I have long held to be responsible for many cases of deep infection immediately following intercourse or nocturnal emissions in the course of anterior urethral gonorrhea, the infectious secretions being drawn from the anterior into the posterior urethra; this, with due respect to the favoring of infection by the hyperemia and mechanical disturbance incidental to sexual excitement and orgasm. The case I present herewith is a very suggestive one, and I think will be of interest.

About three years ago I operated upon a hypospadiac, seventeen years of age. The penis was incurvated, the meatus opening at a point about midway between the peno-scrotal angle and the base of the glands. I first freed the urethra and transplanted it backward, so that the meatus opened at the peno-scrotal angle. I then straightened the penis by removing or severing all resisting tissues upon its inferior surface. After healing was complete I performed a plastic operation, constructing a new penile urethra from the tissues of the scrotum. The roof of the new canal was composed entirely of cicatricial tissue and penile integument, the floor of scrotal tissue, epithelium inwards. The result was almost ideal. There was a slight amount of sloughing anteriorly, so that when healing was complete the new meatus was located just behind the base of the gland. As the penis, unlike most cases of the kind, was exceptionally well

developed, the new penile urethra was rather longer than the average. The boy's father subsequently informed me that the work was too effective, as my patient was indulging sexually to an inordinate extent. I consoled him with the statement that his son was probably in less danger than most youths, for the reason that the skin being insusceptible to the gonococcus, and the boy's entire anterior penile urethra being composed of integument, it was not likely he would ever contract gonorrhea. A few weeks since my friend, Dr. R. H. Lawrence of Chicago, who originally referred the case to me, informed me that our patient had contracted about a year ago a typic gonorrhea with a complicating epididymitis and prostatitis. The progress of the infection from the beginning was not clear to the doctor as the patient had not presented himself immediately after the symptoms developed. The typic gonococci were found in the urethral discharge, however, proving the character of the case beyond peradventure of doubt.

It would have been interesting to know whether symptoms of deep infection came on before any discharge was manifest anteriorly. I have endeavored to get in touch with the patient with the view of clearing up some of the doubtful points, but have been unable to do so. The principal point involved in the case, however, is that a patient with a urethra lined from the meatus to the peno-scrotal angle by integument, or quasi-integument, following a plastic restoration of the canal, subsequently became infected by gonorrhea. I do not believe that in this case the infection occurred by contiguity of infection, although I confess I have no means of proving this. I am more inclined to believe that careful early observation with reference to the strictly scientific features of the case from the standpoint of the mechanics of the infection, would show that the infection was drawn down into the deeper portion of the canal during the sexual act, and that the first morbid phenomena were manifest in the peno-scrotal portion of the canal.

I regret exceedingly that this case was not under my own personal observation at the beginning of the urethral infection. Not having had his attention drawn to the interesting feature of the case under consideration, his physician naturally did not make an exhaustive study of the case.



## A TOPOGRAPHICAL CYSTO-URETHROSCOPE

By JULIUS LONDON, M.D.

Adjunct Visiting Genito-Urinary Surgeon, Beth David Hospital; Genito-Urinary Surgeon, O. P. D. Lebanon Hospital; Assistant in Genito-Urinary Department, Mt. Sinai Dispensary.

**I**N this preliminary communication I desire to present to the profession a cysto-urethroscope, which I have devised for the purpose of giving a topographical view of the mucosa of the bladder and urethra.

My instrument consists of an outer sheath which is a straight tube size 24 French, with two water cocks attached to it and a catch for holding the obturator in place. The obturator is jointed at its distal end so that it forms a knee bend at its distal end when the catch holding it in the sheath is tightened. The optical system is composed of a straight sheath which carries at its distal end the lighting arrangement composed of two small lamps, protected by a cylindrical glass cap. Two lamps are used so that the shadows cast by one are neutralized by the light of the other. Proximal to the lamps is the special lens. A telescope system fits into the lumen of this inner or optical sheath, and carries the image formed by the first lens to the eye. The above mentioned lens has been made in two types, one, the perfect sphere, and one the biconvex lens — the former is more satisfactory for my purposes. One-half of this lens is silvered, the silvered surface being placed next to the lamp and facing backward. This silvered surface is virtually a concave spherical mirror, the concavity directed backward. The unsilvered surface, being posterior, acts to overcome the spherical aberration of the latter, and somewhat to increase its optical angle. The optical angle of this lens is 150 degrees in any principal plane, the angle being directed backwards, i. e. toward the examiner, while the field of vision embraces the entire circumference of 360 degrees, in a plane at right angles to the long axis of the instrument. This lens thus has an optical angle, in any principal plane at least 50 degrees greater, and the view of the horizon at least eight times greater than previously attainable in the ordinary type of cystoscope and urethroscope. For example, one position of the instrument shows the entire sphincter of the bladder and almost the entire prostatic urethra in the same topographical view. For comparing all sides of the wall of the urethra and bladder this is very desirable, as one position of the instru-

ment shows the entire circumference of the internal sphincter of the bladder and the prostatic urethra beyond the colliculus in the same view. The internal sphincter in its entire circumference, and adjacent parts, come into the field of vision when the objective is but one-quarter of an inch distant. Inspection and comparison can thus be made without rotating the instrument. By pushing the instrument forward or backward, a panoramic view can be obtained; thus by pushing the instrument slightly further into the bladder in the above mentioned view we can see in the same field, both ureters and the interureteric fold between them. All other lens systems reduce the angle of vision in water but it is a property of this instrument that the angle of vision is increased, the angle of vision in water being 150 degrees, while that in air is only 100 degrees. This feature has not been observed previously, and is therefore an absolute novelty.

On account of its close working distance, this instrument is ideal in a collapsed bladder or one intolerant of distension. After examining bladder, the fluid is allowed to run out before examining the posterior urethra, as the latter must be examined while being irrigated, and the fluid runs into the bladder. In examining the urethra it is necessary to grasp the head of the penis around the instrument to retain the fluid, in order to prevent the mucosa collapsing around the instrument between the light and the optical system.

(Mr. R. Wappler has executed the mechanical work.)

763 EAST 156TH STREET,  
NEW YORK CITY, N. Y.

## A REPORT OF A CASE OF CONGENITAL DOUBLE URETHRA

By WALTER LENEHAN, M.D., Nashville, Tenn.

I AM reporting this as an unique case, as I am able to find scant mention of such a condition in the literature, and only one of my urological friends — Dr. Frank Glenn of Nashville, Tennessee, to whom I have described the case — has ever seen anything similar. The condition is certainly very rare, and I believe my case to be of sufficient interest to warrant its report.

On October 4, a young man, 24 years of age, came to my office suffering with a posterior urethritis of several months standing. After getting his history, I placed him on my table for examination.

The first thing with which I was confronted, was the condition which I am about to describe. When I separated the lips of the meatus, a thick membrane presented itself, running from the lateral walls of the urethra, completely dividing the urethra into two halves. Thinking that this membrane was only present at, or only a short distance back of the meatus, I passed a number 20 F. bulbous bougie down the inferior canal to the bladder and tried to engage its shoulder against the internal edge of this membrane in its withdrawal. This I failed to do. I then passed a soft rubber catheter through this same canal, and entered the bladder without trouble.

Next, I turned my attention to the superior canal. This would only take a number 9 F. soft rubber catheter. I failed to enter the bladder in this instance, but I passed my catheter back to it.

I now left the catheter in the superior canal and passed my endoscope, number 20 F., back to the bladder through the inferior canal and examined every portion of the urethra from the bladder to the meatus. The dividing membrane was completely intact throughout, and at no place was I able to find an opening in it, though I could see the catheter bulging through the walls for the entire length of the urethra.

The appearance of this dividing membrane in the inferior canal was that of normal urethral mucous membrane, and seemed to spring abruptly from the lateral walls of the urethra. It was about 1-16 of an inch in thickness.

I made no endoscopic examination of the superior canal as it was too small in caliber to admit an endoscope. I am sure, however, that it is not a false passage, for the young man tells me that he has never had an instrument passed until I passed them, and as I used a soft rubber catheter only in the superior canal, and it slipped in with the greatest facility, without any force whatever. I am confident that it is a case of congenital double urethra.

The young man told me that he had noticed that he had two openings at his meatus from the time he was old enough to notice such a thing and that he has never passed any urine whatever from the superior canal. There was no evidence to make me suppose that he had had a gonorrheal infection of the superior canal. Certainly, his condition, when I saw him was a deep infection of the inferior canal.

WALTER LENEHAN, M.D.

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### INFANTILE KIDNEY AND OCCLUSION OF URETHER WITH NEPHROLITHIASIS ON THE OP- POSITE SIDE

By JOSEPH S. LEWIS, A.B. M.D., and CHAS. W. BETHUNE, M.D.,  
Buffalo, N. Y.

**T**HE patient, a maiden lady of 45, had a long history of digestive and menstrual disturbance. Prior to 1910 she had never had a serious illness and had led an active life. In the fall of this year she had, "bladder trouble and a convulsion," which her physician told her was due to kidney disease.

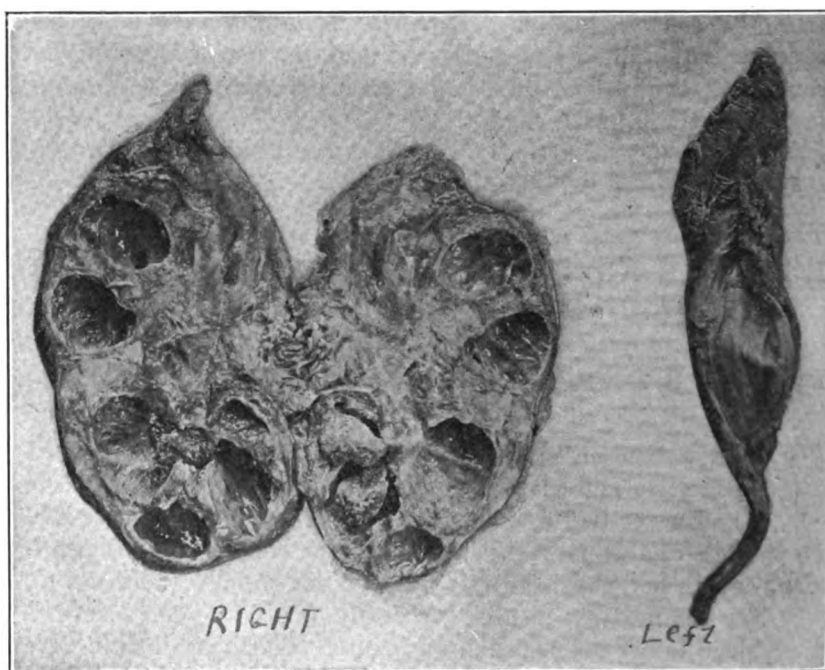
For the next six months her health was fair. She then noticed blood in her urine, usually intimately mixed, small clots were seen at intervals. The hematuria persisted with occasional intermissions until her death. Uremic convulsions began about Feb. 1, 1912.

Dr. J. G. Jones, under whose care she was at this time, found a mass in the right kidney region and referred her to Dr. Lewis for possible surgical intervention.

Physical examination showed a very anemic and emaciated woman; feet and ankles edematous. In the right kidney region a mass the size of a cocoanut was felt. This mass was not tender but manipulation caused increased hematuria. In spite

of the emaciation and general relaxed condition of the patient's musculature, the left kidney could not be palpated. It may be mentioned here that at no time had the patient the slightest pain or tenderness in the right loin. The specific gravity of the urine was 1,011, no pus cells or casts, but about four drams of blood was precipitated from a 24-hour sample. The examination of the blood showed; hemaglobin 80% ; red cells, 4,000,000: white cells, 6,000.

Injection of precipitated blood serum (Clews) had no effect on the hematuria. Intravenous injection of five minims of



adrenalin solution caused a transient cessation of the hematuria but reduced the specific gravity of the urine to 1,004.

On Feb. 17 she was removed to the Buffalo General Hospital and cystoscoped by Dr. Bethune. The bladder was normal except for a bulging just above the interurethric ridge by invagination of the bladder wall due to the pressure of a uterine tumor. Air dilatation was first tried but the bulging formed a shelf in front of which a pool of bloody urine rapidly collected and obscured the ureteral orifices. Continual irrigation was then used and numerous tiny dimples were seen in the region of the left orifice.

Each of these was probed until one was found patent and a 4F catheter introduced. The catheter was introduced 25mm. when an impassable obstruction was reached. The right orifice was distinct and functionated slowly. A 6F catheter was introduced and passed easily up to the pelvis of the kidney. Bloody urine dropped rapidly from the right catheter but there was no flow from the left. Phenolsulphonephthalein was then injected into the buttock and appeared in the right urine in about 30 minutes. In four hours less than ten per cent. of the dye was excreted. The right urine contained a few granular casts and uric acid crystals neither of which were found in the first sample examined. The catheters were left in position 12 hours to definitely determine the presence or absence of reflex anuria of the left kidney; but the anuria persisted. Operative interference being out of the question a hopeless prognosis was given and the patient was removed to her home before a radiogram could be made.

The patient died March 6, 1912, and a partial autopsy was done at the house. The site of the left kidney was filled with fat of the perirenal type extending down to the left common iliac artery, over which a rudimentary kidney (43x18x12mm.) was found. The ureter was dilated for about 50 mm. then totally occluded for about 13mm. after which it was patent for the last 25 mm., although of small caliber.

The right kidney was the size of a cocoanut and so full of calculi that it felt like a bag of marbles. On section the cortex was infiltrated with pockets containing fragile calculi and sand. But little apparently functioning cortex was found and it is remarkable that the patient lived as long as she did.

A sessile subperitoneal myoma of the anterior surface of the uterus 37mm. in diameter was found slightly above the level of the internal os.

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### **SURVIVAL AFTER SEVERAL OPERATIONS IN SPITE OF UNUSUALLY LOW PHENOLSULPHONEPHTHALEIN OUTPUT.**

By EDWARD L. KEYES, JR., M. D., New York City.

**T**HE following case demonstrates the fallibility of the phenolsulphonephthalein test as an indication of the patient's ability to withstand operation. Yet, this single exception among several hundreds of cases upon which we have employed this test does not in anyway diminish our respect for it,

but only shows that, in common with other diagnostic methods, it is not absolutely infallible.

The patient was an Irish laborer, 56 years of age, who entered Bellevue hospital in November 4th, 1911, giving a history of ancient stricture and exhibiting an acute complete retention. Five years previously a perineal section had been done and since that time the patient had passed all of his urine through the perineum. Closure of this orifice resulted in complete retention.

Inasmuch as the interue was unable to enter the bladder I went to the hospital, found a lean, anemic looking patient with a normal temperature and a moist tongue. As no spinal anesthesia was to be had ether was administered and the bladder readily entered by way of the perineal fistula. The urine thus obtained, however, looked like pus and water. The stricture was therefore rapidly incised, no attempt at resection being made. On the following day, the patient's condition being satisfactory, 1 c.c. of phenolsulphonephthalein was injected into the lumbar muscles. None returned in two hours and the urine collected for 18 hours thereafter showed so slight a tinge that this could not be measured. Four days after this there was again but a trace in 12 hours after injection.

On December 23rd, however, the color appeared in 35 minutes after injection and 4% was obtained in one hour and twenty-five minutes after that.

On December 21st, the perineal sinus remaining open and the patient failing to empty his bladder of about 8 ounces of residual urine, spinal anesthesia was administered and the inter-trigonal bar as well as the neck of the bladder were divided by the Chetwood galvano-cautery. The patient showed no bad reaction after this operation, any more than after the former one. On the eighth day phenolsulphonephthalein was again injected with precisely the same result as on December 23rd.

On March 3, 1912, the patient had established his capacity to empty his bladder, yet the perineal sinus remained open. Accordingly spinal anesthesia was again administered and the sinus closed.

On March 22 he returned home and when last seen a month later, was in excellent health, only requiring the occasional passage of a sound. On this date phenolsulphonephthalein appeared in 50 minutes after intramuscular injection and in the first hour thereafter the patient excreted  $2\frac{1}{2}\%$ ; in the second hour 2%.

## REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman and  
Walter J. Heimann.

### FOLIA UROLOGICA

Vol. VI, No. 10, 1912.

1. Anatomical Studies of Prostatic Hypertrophy. (The Relation of Submucous Nodules to Prostatic Hypertrophy.) By J. Tandler and O. Zuckerkandl.
  2. Anthropological Explanation of Congenital Renal Dystopia. By F. Cathelin.
  3. Two Cases of Curettage of the Bladder Per Vias Naturales for Calcareous Incrustations. By A. Grandjean.
  4. The Maydl Ureteral Transplantations, as Modified by Berglund, Borelius and Mysz. By S. F. Dechanow.
1. Anatomical Studies of Prostatic Hypertrophy.

The authors discuss the question of the presence of submucous nodules in the vesical orifice and prostatic urethra and their relationship to prostatic hypertrophy. They claim to have demonstrated that in prostatic hypertrophy there is always an hypertrophy of the median lobe and that the urethra included between the internal sphincter and the verumontanum is involved. Two varieties of prostatic enlargement may be distinguished. In one, the prostate bulges upward, distorts the urethral orifice and projects into the bladder; in the other, the entire bladder floor is raised without in any way affecting the urethral orifice. As for the relation of the sphincter to the hypertrophied prostate, it was found that in the distorting type of growth, the sphincter surrounds the tumor producing a furrow that divides the mass into a pelvic and a vesical portion. In the extra-vesical variety, the sphincter is unchanged.

Nodules of various form frequently occur in the region of the vesical orifice. They are usually multiple and laterally disposed. They are of interest in that they simulate true prostatic hypertrophy, although they have no connection with the prostate gland. It is likely that these growths arise from the submucous glands in the sphincteric region and in the prostatic urethra. The differential diagnosis between prostatic hypertrophy and the above described submucous nodules can only be made after the bladder has been opened. Their recognition is of extreme importance for when they alone are present, prostatectomy is unnecessary and often harmful; excision of the nodules is the operation of choice. The two conditions also differ radically as far as operative results are concerned, recurrence being not unusual in the case of the submucous nodules, and rare in ordinary "hypertrophy."

2. Anthropological Explanation of Congenital Renal Dystopia.

Cathelin discusses the causation of congenital renal dystopia from the anthropological standpoint and gives data concerning frequency,



sex and locality affected. The frequency of the condition is due to the crouching position of the fetus in utero, and the right side is usually affected because of the enormous size of the fetal liver. The widening of the pelvic inlet in the female favors the downward displacement of the kidney.

### 3. Two Cases of Curettage of the Bladder Per Vias Naturales for Calcareous Incrustations.

Calcification of the bladder walls is a rare condition and seems to be favored by suppurative inflammation of the vesical lining. The diagnosis is made by cystoscopy or instrumental examination. Treatment consists in curettage per vias naturales, the mucous membrane being removed as in curettement of the uterus. It is of interest to note that tuberculous lesions in the bladder of the first case cited, were cured by curettage. If the calcified areas are so thick as to resist this treatment, a sort of lithotripsy may be tried as a first step. The bladder should be washed daily, through a permanent catheter left in situ for 4-6 weeks, and treatment should be continued until the mucous membrane has regained its normal appearance.

### 4. Ureteral Transplantation (Maydl) as Modified by Berglund-Borelius and Mysz.

The operation of Maydl for vesical ectopia, which means the transplantation of the trigone and ureters into the sigmoid flexure, has a considerably lower mortality than simple division of the ureters with implantation into the rectum. Various modifications of this procedure have been suggested, all with a view to minimize the dangers of an ascending infection. Berglund and Borelius suggested sequestration of a portion of the sigmoid by anastomosis and implantation of the ureters into the isolated loop. A later modification by Mysz consisted in ligating the ascending end directly below the anastomosis, to prevent the entrance of pus into the gut. The author, in his case, combined the method of Maydl with that of Mysz in that the ureters with the trigone were transplanted. The author's patient made an uneventful recovery, and 6 weeks after the operation was in excellent condition.

### Hematuria and Tuberculosis of a Patent Urachus.

H. E. Pearse and E. L. Miller (*J.A.M.A.*, June 1, 1912), report the case of a woman 26 years of age who presented an indurated tumor  $2\frac{1}{2}$  inches below the umbilicus in the mid-line. Pressure over the central portion of the tumor caused a muco-purulent discharge from a sinus near the center of the umbilicus. A diagnosis of infected tuberculous cyst of the abdominal wall, probably of the urachus was made. The wall of the cyst was excised under general anaesthesia. After the operation a scarlatiniform erythematous efflorescence appeared, and subsided in 4 days.

Six days after operation the patient passed markedly bloody urine, which blood was found on cystoscopic examination to come from an opening in the bladder fundus. On the eighth day after the first operation a second exploration was made and the opening of the patient's urachus was found and the urachus excised. The same rash appeared as after the first operation and disappeared in the same manner. The recovery was complete. Microscopic sections of the wall of the sinus showed tuberculosis.

#### The Significance of Vaccine Therapy in Urology.

H. Reiter (*Deutsch Med. Woch.*, May 2, 1912), says that the first requisite for successful vaccine therapy is the recognition of the type of infecting organism. Where a mixed infection exists this is often difficult. Where an old gonorrheal infection is suspected the author injects a large dose of gonococcus vaccine and takes note of any local or general manifestation. Often a slight discharge is produced and this and the urine are carefully examined for gonococci. A negative reaction after such a diagnostic injection is not conclusive and the injection should be repeated in three to four weeks. Auto-genous vaccines are to be preferred, especially in *B. coli* infections. The author begins treatment with small doses, in gonorrheal infections the initial dose being 5 million. If no reaction is produced a larger dose is given after 5 days. The larger the dose the longer should be the interval between injections. Reactions should not last longer than 12 to 24 hours. Gonorrheal complications are favorably influenced in about 75 per cent. of cases; in other urological infections 60 per cent. show improvement under vaccine therapy. Acute gonorrhea is seldom favorably influenced.

#### Vaccine Therapy and Vaccine Diagnosis in Gonorrhea.

Guggisberg (*Münch Med. Woch.*, May 28, 1912), considers the subcutaneous injection of gonococcus vaccines of some value in the diagnosis of gonorrheal affections. Three manifestations after injection should be taken into consideration. The focal, local and general reaction. The focal reaction is evidenced by severe pain in the region affected, with increased discharge and, at times with the reappearance of gonococci. Negative cases do not react at all, or else but slightly. The local reaction manifests itself by pain, swelling and redness at the site of injection. The general reaction shows itself by the development of fever malaise and headache, and is most marked in the early cases. In chronic cases it is often absent. Vaccines should not be used therapeutically when there are general manifestations especially in the presence of fever. It is best to wait until the infection has become localized and then the vaccine therapy should be combined with resorptive measures such as hot air and massage. Autogenous

vaccines are most efficacious, but on account of the difficulties attendant upon their preparation, stock vaccines will have to be used most frequently. In general the results obtained by vaccine therapy are good.

#### Substitution of an Urethral Defect with the Saphenous Vein.

R. Mühsam (*Deutsch. Med. Woch.*, June 6, 1912), believes that if the urethral defect is not more than 4 cm. long, suture of the divided ends may be followed by success. For larger defects, some operators have used skin flaps and fascia; and Lexer obtained an excellent result by transplanting the appendix, bridging a gap 8 cm. long. Schmieden successfully grafted a portion of ureter in a case of hypospadias.

The author reports a case in which he transplanted a portion of the saphenous vein, for defect of 6 cm. following resection for stricture. Both ends of the vein were carefully sutured to the urethra over a catheter which was left *in situ*. Suprapubic drainage was then established. The functional result was good; the patient voided with a good stream and the perineal wound healed without fistula formation. At the two sites of suture, however, there was a tendency to stricture formation which made frequent dilatation necessary.

#### A Mixed Tumor of the Pelvis of the Kidney.

W. Fisher and K. Murakami (*Virchow's Archiv.*, Vol. 208, Nos. 2 and 3), describe a polypoid tumor which entirely filled the pelvis of a hydronephrotic, contracted kidney. The tumor was composed of connective tissue, smooth muscle, fat and glandular elements. It arose from several isolated places in the pelvis and medullary portion of the kidney. The patient was well 3 years after operation. The authors regard the tumor as a nonmalignant mixed neoplasm originating in the Wolffian duct.

#### Treatment of Sexual Impotence.

In the treatment of psychic impotence Lissman (*Munch. Med. Woch.*, June 11, 1912), recommends the use of all physical methods that can in any way impress the patient, and calls attention to the value of the suction pump of Zabloudowski. Under the heading of nervous impotence are included these cases which are neither psychic or organic in origin; in these cases there is a pathological weakness of the sexual centers. Besides the above mentioned methods of treatment the author reports good results following the epidural injection of yohimbin. A 2 per cent. solution in saline is injected, and, if necessary, repeated two or three times. The oral or subcutaneous administration of yohimbin does not give as satisfactory results as the epidural method.

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## STUDIES IN THE ANATOMY OF THE KIDNEY\*

By CHARLES W. BONNEY, A.B., M.D., Philadelphia.

THE observations herein recorded were made during the last three winters in the dissecting rooms of the Jefferson Medical College and were in part supplementary to others carried on during preceding years. The previous studies were undertaken for the double purpose of determining the factors concerned in producing normal fixation of the kidney and of gaining some personal knowledge relative to the frequency of multiple renal arteries. The opinion previously formed with reference to the rôle played by the renal fascia in maintaining the kidney in place has not been changed as the result of further observations and experiments. This is a portion of the retro-peritoneal connective tissue which is continuous with the diaphragm. It consists of two layers which envelop the kidney. One of them passing in front of the organ blends with the corresponding layer of the opposite side just over the lumbar vertebrae; the other passing behind the kidney is attached to the vertebrae along the psoas magnus muscle. By means of its attachments above and below it is naturally well adapted to hold in place the organ which it envelops, and as I have found that any considerable displacement of the kidney cannot be made without impairing the integrity of this tissue, I have come to the conclusion that imperfect development or acquired relaxation of the latter is the factor principally concerned in the production of floating kidney.

In my second series of cases, comprising fifty-nine subjects, the relations of the structures at the hilum, that is, those forming the surgical pedicle of the kidney, were studied. Out of forty bodies having a single renal artery on both sides, the classical re-

\* Read before the Philadelphia Genito-Urinary Society, May 27, 1912, and the Philadelphia Pathological Society, June 13, 1912.

lation of vein, artery and ureter from before backward was found in thirty-four. In one the artery lay in front of the renal vein throughout its whole extent, rising above the latter immediately after it was given off from the aorta. In five the artery crossed the vein and became anterior to it at variable distances from its origin to its entrance into the hilum. This relation of the artery to the vein, which was also found in six out of nineteen cases in which multiple renal arteries were present, and which by the way is not mentioned in several standard text-books consulted, I believe to have a possible pathological significance to which, so far as I am aware, attention has never been called. It seems not unlikely that pressure of the firmer vessel upon the more elastic one might result in stasis within the kidney and eventually lead to morbid structural changes, in other words, affect the functional power of the renal epithelium. Such an occurrence would be more probable in cases in which the kidney is abnormally movable either as the result of laxity of the renal fascia or the existence of a pedicle of unusual length, as sometimes has been observed when a supernumerary artery has entered the substance of the kidney itself above or below the hilum. Hardening of the artery might also have the same effect and thus hasten an already beginning morbid renal process primarily dependent upon the same causes which have produced sclerosis of the vessels. It has occurred to me also that there may be some relation between transient or so-called functional albuminuria and temporary stasis thus produced, but of course this is a matter which is purely conjectural, being insusceptible of proof either by the adduction of facts or the performance of experiments.

In former times anomalies in the blood supply of the kidneys were solely of anatomical interest and even in that respect received little attention from the authors of standard text-books. With the development of renal surgery, however, their clinical and pathological importance came to be better understood, with the result that contributions have been made from time to time concerning the frequency and practical significance of their occurrence.

In my first series of observations multiple renal arteries were found in approximately twenty-nine per cent. of the subjects examined. No accurate data were kept except as to their relative frequency, although some conditions noticed led to the observations, based upon an examination of fifty-nine cadavers, which are

embodied in this report. In nineteen of these subjects, or thirty-two and two-tenths per cent., multiple arteries derived from the abdominal aorta were found going to one or both kidneys. In eight subjects they went to the left kidney, in seven to the right and in four to both. I formerly thought that they might be more common on the left side, but at present am rather inclined to believe that any differences shown in frequency of their distribution to the two sides are fortuitous. Different series of observations

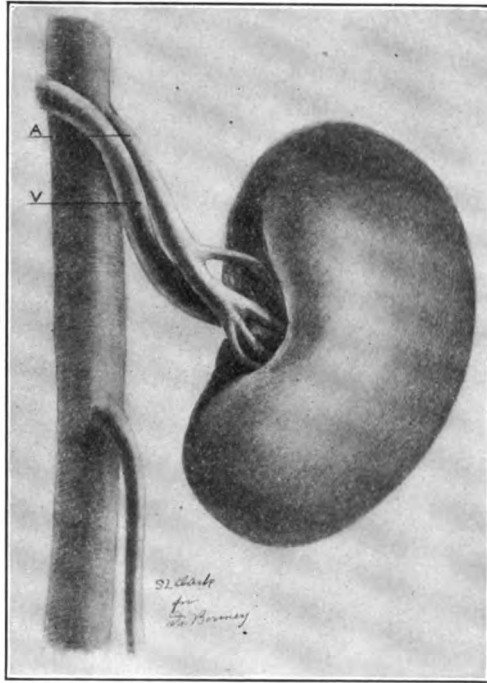


Fig. I. Showing the artery crossing the vein. A artery; V vein.

would probably show different results in this respect. Usually only two arteries are present. In two of the nineteen subjects there were three. As already stated, in six subjects one of the arteries crossed the vein before it entered the kidney.

The origin of these vessels from the aorta is variable. Sometimes two come off side by side while sometimes there is a considerable space between their points of origin. I have seen a vessel originating from the aorta close to its bifurcation into the common iliacs run upwards to enter the lower pole of the kidneys upon its

convex margin. Sometimes a vessel comes opposite the upper or lower pole and runs transversely to either one of these parts of the organ. Then again its course may be oblique from above downwards or from below upwards, whether it go to the hilum or to the poles. In the majority of cases the vessels enter at one

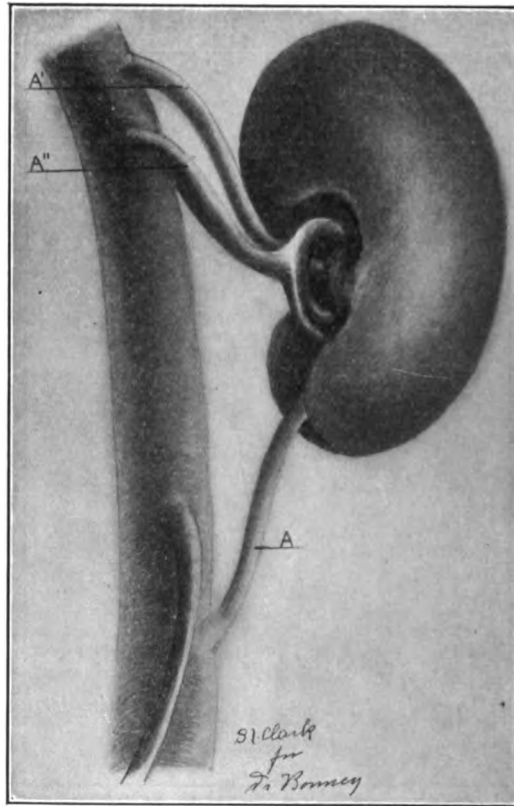


Fig. II. Showing three arteries derived from the aorta, two going to the hilum and one to the lower pole. Observe the peculiar way in which "A" bifurcates.

of these sites, although occasionally one has been found penetrating the anterior surface or the external border of the organ. In one of the fifty-nine subjects examined a small artery the size of a knitting needle passed obliquely downward from the aorta and went into the substance of the gland close to its external border. On the living subject such a vessel would in all probability be torn or cut when the kidney was brought out of the incision.

The superior polar arteries are the ones which are of the

greater surgical importance. The upper pole of the kidney, being beneath the false ribs, the right beneath the twelfth and the left usually under the eleventh as well, and being more firmly bound down by the renal fascia in this location is normally more difficult of liberation, in the majority of instances upon the living

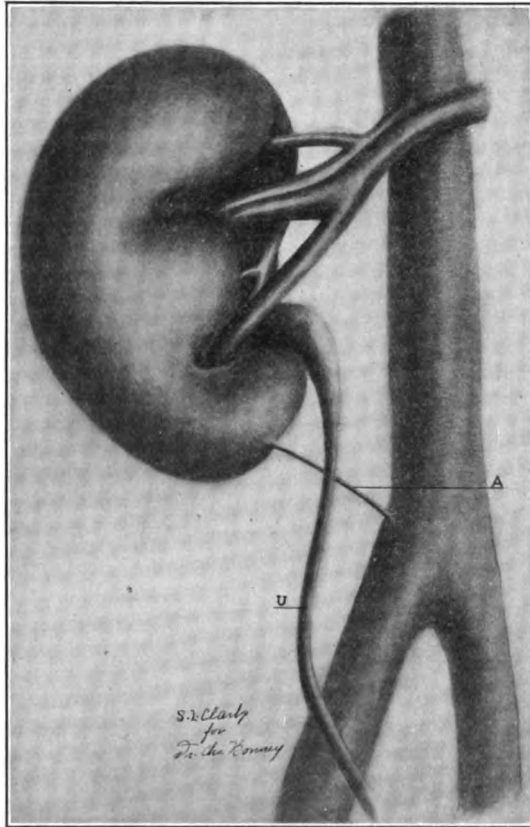


Fig. III. Showing a slender inferior polar artery behind the ureter.  
A artery; U ureter.

subject, being freed by touch unaided by sight. This is particularly true in operations for inflammatory conditions or their sequelæ, and the ease with which a blood vessel can be torn has been demonstrated by the most competent renal surgeons. Rovsing has expressed the opinion that inflammatory conditions are more common around the upper part of the kidney than at other situations. Whether this be true except so far as extension of suppuration from the pleural cavity through the costodiaphrag-



matic sinus is concerned, the fact remains that even when no disease is present, the kidney is more difficult to free at its upper than at its lower pole. Especially likely to be ruptured are the short supernumerary arteries passing transversely from the aorta to the superior pole. They form an additional short pedicle to that portion of the organ, fixing it even more firmly than is usually the case. I unintentionally tore one such vessel on the cadaver when bringing the kidney over the costal margin. On the living subject the same thing might happen, or perhaps what is more likely the vessel might be mistaken for a thick strong adhesion and be intentionally divided. The presence of the suprarenal branch of the renal artery in this region must also be remembered. It becomes apparent that in performing nephrectomy one should be especially careful when working around the upper pole. The application of a clamp to that which is apparently a mass of adhesions may save troublesome hemorrhage from a blood vessel contained therein. Also very dangerous with respect to hemorrhage, both primary and secondary, are those cases in which diffuse perirenal inflammation has so bound the kidney down that it cannot be brought outside the wound until its pedicle has been divided. It is not so much the polar arteries that are to be feared here as it is vessels, either accessory trunks from the aorta or branches from a main renal artery, which entering the substance of the kidney above or below the respective margins of the hilum may escape either clamp or ligature or both. The latter branches being smaller might not bleed to any extent immediately after being divided distal to a clamp, owing to bruising of their coats, but they might relax afterwards and give rise to secondary hemorrhage. I believe that this has actually happened in more than one case to the injury of the patient and the discomfort of the surgeon. The inferior polar arteries have been considered of pathological rather than of surgical interest and their presumable etiological relation to hydronephrosis has recently been brought to the attention to those interested in renal diseases by the monographs of Ekehorn, Iglesias, Mayo and Braasch and a few other writers. That an abnormal renal artery passing across the ureter in such a way as to constrict or twist it or to elevate it as it emerges from the kidney is capable of causing retention of the secretion is not to be doubted. Those arteries which pass behind the ureter are more likely to produce such a result, it seems to me, than are those which go in front. The latter course is probably the more com-

mon one. It was the one which obtained in five out of seven subjects in the second series of cases in which inferior polar vessels were present. Abnormal mobility of the kidney no doubt would further the development of retention when such vessels are present, inasmuch as it would tend to kinking of, or traction upon,

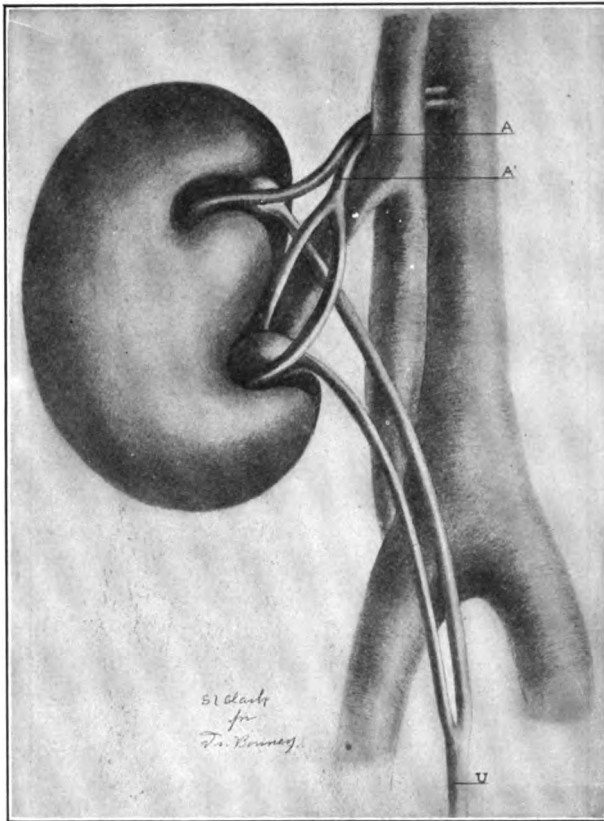


Fig. IV. Showing double arteries and double ureters, the latter uniting to form a single channel. A and A' arteries, U ureter formed of two channels. Observe how one branch of A' crosses both ureters anteriorly, and how the other crosses one anteriorly and enters the hilum posteriorly to the second one.

both vascular and urinary channels. When in addition to an inferior polar artery there is a superior one, the pedicle is bound to be longer than normal with consequent greater mobility of the kidney, even though the increase be only slight. It is under such circumstances, no doubt, that the pathological rôle of the inferior polar artery is greatest.

A question which arises in this connection and an important one, I believe, is whether an anomalous polar artery should be cut for the cure of hydronephrosis, as has been done by a number of good surgeons. We have corrosion preparations at the Daniel

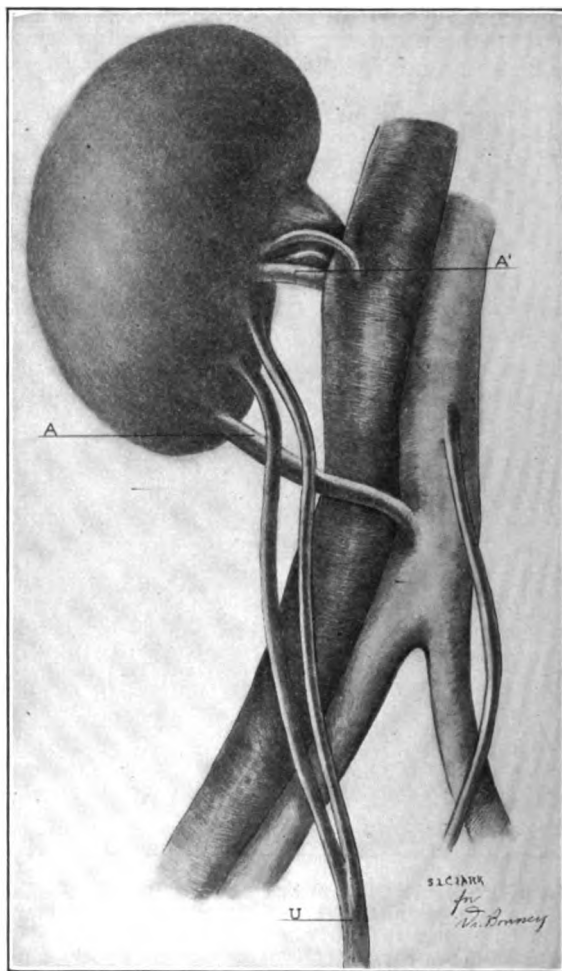


Fig. V. Showing double arteries and double ureters, the latter uniting to form a single channel. Observe that one artery goes in front of the vena cava, the other behind. A and A' arteries; U ureter, formed of two channels.

Baugh Institute of Anatomy which show that there is not any anastomosis within the kidney between the various subdivisions of the renal artery which enter the hilum at different points.

Professor Spitzka also made a corrosion preparation of a kidney having multiple arteries and found that the same condition obtained. Thus it is seen that each artery irrigates that area of the organ to which it goes. It naturally follows then that division of such a vessel will cut off the blood supply from a segment of the organ. Inasmuch as inferior polar arteries have been frequently divided without producing serious immediate disturbances, it would seem that sphacelation of the part deprived of its blood-supply does not invariably follow their severance. It is more probable that an anemic infarct would be the result, so that a certain portion of the kidney would become converted into useless tissue. I believe also that immediate trouble might occur. It would be interesting to follow the patients who have been treated in this way. If one thinks of the occasional instances in which patients promptly succumb after such operations or after nephrotomy when in reality they should have few if any serious postoperative manifestations, the question arises as to whether their hyperpyrexia, high leucocytosis, vomiting and cognate signs and symptoms which precede their exitus may not be due to a gangrenous area in the kidney caused by deprivation of arterial blood following ligation of an artery. In this connection the advisability of partial resection instead of ligation of a supernumerary artery might suggest itself. I may say that not a single one of the subjects having multiple arteries either in my first or last series of cases had hydronephrosis. In fact I remember seeing only one hydronephrotic kidney in the dissecting room during the seven years I have worked there as instructor. Very likely the kidneys may have emptied themselves postmortem. Certainly hydronephrosis is encountered more frequently at autopsies upon subjects recently deceased.

In the last series of fifty-nine subjects there were two interesting anomalies of the ureter. In one kidney having two arteries, two ureters came out of the hilum, one at the superior margin and the other at the inferior, and then united into a common trunk. In the other one a ureter came directly out of the substance of the kidney and then joined the one issuing from the hilum. It would seem that such anomalies are not very unusual. There were also two arteries to this second kidney. Ureters formed of two branches uniting into a common trunk are of a certain pathological and clinical importance. They might prove troublesome even to those most skilled in ureteral catheterization.

## THE LIMITATIONS OF THE CYSTOSCOPE\*

By GEORGE S. WHITESIDE, M.D.

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**T**HE limitations of the cystoscope are mechanical, anatomical and individual. The cystoscope of to-day is far more useful than that of 15 or even 10 years ago, but there is a limit which it would seem has been almost reached. In this, as in anything else, the man behind the gun is of first importance for results. Practice, dexterity, experience and good judgment are essential to the use of the very best instrument that ever will be invented. There have been many invented. Some of you have contributed. Fifteen years ago cystoscopes were mechanically imperfect. The lights were hot. I cauterized a bladder once with one of them. This was especially true of the German and Austrian instruments. The field of vision was small and dim as though in shadow. The mechanical contrivances for irrigation, catheterization, etc. were clumsy. These things have been remedied to a great extent in modern instruments. It is abundantly evident, however, that there is no one best cystoscope since there are so many on the market. This fact accounts for one of our present day difficulties in that there is no universally accepted best conducting cord attachment. If it becomes necessary to change from one instrument to another during an examination, unless the two are of the same make, the cords must be changed. This causes delay, especially in cases examined without anesthesia. Some day we may have more unanimity and many patients will be thankful. Neither is there a standard size of catheter. Some instruments take No. 5 and some larger sizes. It would be better if we could agree on one size and stick to it. Of late years the larger sizes are most popular. It used to be thought the ureter would not admit them. In the main there are but two kinds of cystoscopes — direct and indirect view. Of course I refer only to cystoscopy in a water medium. In regard to the air dilating cystoscopes the worst feature of them is the pain occasioned by the air pressure in the bladder. My patients have complained of this bitterly. In other respects air filling entirely overcomes the limitation imposed upon operating in a water medium by bleeding. I know no one who uses air dilating cystoscopes now-a-days excepting some who catheterize the female ureters

\* Read at the annual meeting of the American Association of Genito-Urinary Surgeons at Philadelphia, June 7, 1912.

through an open endoscope tube. To return to water cystoscopes. With an indirect view instrument it is almost always possible to find the ureter openings but not always possible to enter them. With a direct view instrument they are sometimes impossible to find, though when found they may be readily entered. Even a retrograde attachment does not give a really good view of the neck and outlet or of some deep pocket in the bladder. It is entirely a matter of personal equation which general type is preferred. Some surgeons incline to one and some to the other. Necessarily the indirect view instrument is the best examining cystoscope. There is no question as to that. It seems to me the effort now being made by most instrument makers to transform an inverted image to an erect one is a waste of time. What difference does it make to the skilled cystoscopist whether the image is inverted or erect? It is all a matter of habit. If the surgeon is accustomed to viewing inverted images he can judge of them just as accurately as another can of erect images.

In regard to facility of introduction of the instrument into the bladder of course if the urethra is too small it must be suitably dilated. This having been arranged undoubtedly the less the caliber of the cystoscope shaft consistent with a reasonable sized visual field the better. This applies even more to all sorts of operating cystoscopes than to mere examining ones. It is now generally considered that the shaft should be round or only slightly oval. All channels for irrigation, catheters or other appliances should bulge interiorly, not peripherally. Irrigation channels should be of generous size, otherwise they are of no use whatever. A small trickling stream will not clear a clouded filling fluid. Channels for ureter catheters (of which there are always two on all modern instruments) should never be continuously closed as in some used 10 years ago. It should be possible to catheterize one ureter, free the catheter from the cystoscope, empty and refill the bladder, reintroduce the cystoscope for examination or to catheterize the other side. This is not often a necessary maneuver, but bleeding or a burned out lamp sometimes make it imperative. I have had difficulty at times, when attempting this, with the beak of the instrument catching in a loop of the already placed ureter catheter and partially or wholly withdrawing it from the ureter. This has proven especially likely to happen with a catheter with a lead wire in it placed for X-ray diagnosis. The advantage of the ordinary lead wire threaded

catheter is that one can collect urine from it in addition to having an X-ray plate of it. Otherwise I have thought a closed-end bougie filled under pressure with metallic mercury would present some advantages over the wire in the catheter. Every ureter catheter should accurately fit the channel of the cystoscope. If too large it can not be easily pushed along and if too small water leaks out along side it in spite of the little rubber nipples intended to prevent it. It saves disappointment to try squirting water through a catheter before attempting to use it. Sometimes it is stopped up. I think the flute ended catheters drain better than the side hole kind, but perhaps they are a little more apt to make the ureter bleed, which though not always of consequence introduces an uncertain source of error in the final estimation of the patient's condition because it may be a puzzling matter to decide whether the blood in the specimen obtained is due to disease or traumatism or to both. Generally I use a plain catheter on the supposedly sound side and one with centimeter rings marked on it on the suspected side. This I do because occasionally the side suspected produces the best urine and then one is inclined to think the catheter may have become twisted, if they look just alike.

After catheterization, with the catheters left in place, in a patient who has had a general anesthetic, his arms should be outside the bed clothes and a nurse should watch him every minute, otherwise he may remove the catheters before enough urine has been collected for examination.

Our Secretary, Dr. Squier, will speak of electrical cauterization with the cystoscope to-morrow so I will not touch it.

Many of you have had, so you say, satisfactory experiences with operating cystoscopes. Frankly, I have not. As soon as I begin to cut or snare something, blood obscures my vision. Perhaps it is my fault. Snaring off little bits of tumors or even biting them off with any device will always be open to the objection that if the tumor is malignant the base has not been removed. Of course the base can be cauterized. Stones may be crushed and washed out as well or better with the old fashioned lithotrite as by one attached to a cystoscope. I have never been able to crush a stone without causing bleeding. Maybe some surgeons can do it. Even with constant irrigation blood clouded filling fluid is not a good visual medium, nor will heavy pus be sufficiently washed away from the floor of the bladder. Even

with general anesthesia a contracted bladder will sometimes refuse to hold the minimum amount for an examination. At the American Urological meeting in Chicago some said they expected to see the day when almost all if not all, calculi would be removed from the ureter by cystoscopic methods. I cannot agree with this. The surgical procedure is neither very difficult nor very dangerous and the cystoscopic method is uncertain in results, often causes much delay and inconvenience to the patient and at the end of it all open incision may become imperative. Dr. Bryan, of Richmond, Va., reported a series of cases of ureter stone most of which were passed per urethram after injecting the renal pelvis with oil. I have never had much luck at it. A few pass the calculi but most of them come to open operation.

I believe filling the renal pelvis with an opaque solution for diagnosis of pelvic dilation or ureteral kinks is a valuable procedure. Some say it is not necessary and adds little to what can be determined without it. X-ray pictures of the kidney for instance. Some fill the kidney pelvis with an antiseptic solution, after any instrumental disturbance of it, to prevent the possibility of accidental infection. It seems a reasonable precaution.

The determination of the functional capacity of either kidney is perhaps the greatest triumph of modern cystoscopy. It undoubtedly has saved more lives than any diagnostic measure in urinary surgery. This will have an even greater value in the future as tests are perfected and simplified. I include in this statement not only tests for permeability of water or solids but the older chemical methods of urinary examination, as applied to the separated urine. All these things you gentlemen know as well or better than I do. It is a waste of time to dilate upon them.

In regard to inspection of diseased conditions in the bladder it is entirely a matter of personal experience and judgment. Even the best of us will, from time to time, see lesions he cannot correctly interpret. Permanent records by means of cystoscopic bladder photography is a fascinating amusement for the surgeon. The pictures are not of much value when, as at present, they are merely outline shadows. Color photography would be a great advantage but has not yet been sufficiently perfected.

In Oregon our cystoscopic difficulties are somewhat different from yours in New York or other eastern centres. In the first place no truer word was ever written than when Caspar, of



Berlin, said that cystoscopy "must always remain the trick of a few." In our part of the country one might say of a very few. For instance I went to Seattle the other day to see a case in consultation with Dr. Peterkin. It would seem ridiculous to any one of you in New York to send to Boston or Philadelphia for a surgeon just to have him look through a cystoscope with you and give his opinion. You could find a consultant in your own city. So you can see that the limitations of cystoscopy in our corner of the country begin with the fact that any one of us there never can find another to look through his cystoscope who is wiser than himself. It teaches self reliance but the field of vision is necessarily limited to a narrow experience.

Our next great difficulty is with the repair man. There is no skilled workman nearer than Chicago who can repair an instrument. This means expense in owning many cystoscopes and delay often times when very inconvenient.

Those of you who have invented or adopted cystoscopes know the mechanical difficulties better than the rest of us. Often I do not know why the field of vision becomes dim or an electrical short circuit occurs. It is quite annoying to have your last light burn out or some other accident happen during an examination. It is especially so when you are examining a patient in consultation with some old fashioned practitioner who thinks he will give you a chance to demonstrate your vaunted diagnostic superiority although secretly he believes more antiquated methods of examination are less open to error or misinterpretation.

We have made great advances in the last 10 years, especially in estimation of renal disease, but the end is not yet even in sight. Urinary surgeons of 1922 will disrespectfully reflect upon our blunders. By then we will have really entered upon the era of replacement of a bad kidney by a good one. It seems as if the diseased man of the future might be almost as readily patched up and repaired as a worn garment. In this event cystoscopy will be considered even more essentially important than it is now.

THE OREGON JOURNAL BUILDING,  
SEVENTH AND YAMHILL STREETS, JUNE, 1912.

## SURGERY OF THE KIDNEY: BASED ON CASE RECORDS OF TEN YEARS.

By J. F. BALDWIN, M. D., and HUGH A. BALDWIN, M. D.,  
Columbus, Ohio.

**R**ENAL surgery has always possessed for me a very great interest, particularly the after results.

What can we promise our patients when they give themselves up to some sort of renal operation? How many can we expect to lose as a direct result of the operation? How many will survive the operation only to die later of some other trouble, related in some way to the primary disease?

With a view to finding an answer to these many questions, I have recently gone over the histories of all the kidney cases operated upon by my father, J. F. Baldwin, and myself, during the past ten years. I find that there were sixty-seven nephrectomies in the decade: thirty-four of these were for renal tuberculosis; eight were septic cases seeming to bear direct relation to childbirth; one was for so-called idiopathic hemorrhage; ten were cases in which the kidney had been practically destroyed by calculi; eight were sarcomatous, and the remaining few were difficult to classify. There were forty-eight females, and nineteen males. I have been able to trace the after history of every one of the sixty-seven cases. In this I consider myself fortunate, as it makes my figures of so much more value. When we see in case reports a large number of "lost" cases, we are led to believe that perhaps most of them should be put into the dead column.

Of the sixty-seven nephrectomies, regardless of the reason for operation, I find that seventeen or 25% died in the hospital. Eleven have died since, after intervals of two months to six years, making total dead twenty-eight, or 42%. To express it a little differently, eleven of the fifty that survived the operation have died since, in other words 22%.

Let us for a moment stop to consider the cause of death of the eleven. Five of them died of general tuberculosis, one of cancer of the uterus, three of recurring sarcoma, one of paresis, one of pneumonia, leaving just one who died from involvement of the other kidney, this death occurring one year after the operation. Taking out the deaths from pneumonia, paresis, and uterine cancer, we find that eight died from causes directly related to the primary trouble.

To look upon the more pleasant side of the picture let us

consider the 58% living. With five exceptions these patients are absolutely well to-day. Of these five one has pulmonary tuberculosis, but is improving; two still have a little bladder trouble, but so slight that they ignore it; one still complains a great deal, but there is such a large degree of neurasthenia present that it is difficult to judge her condition. Her urine, however, is normal. The last one of the five, though an invalid for twelve years before operation, can do a full day's work, if it is not too heavy. Thirty-four cases then we can say are in perfect health, and show absolutely no signs of any trouble.

Four of the women have given birth, since their operation, to babies — one each. These four cases, with two others occurring previously to 1901, make six patients who have been delivered of live children subsequent to their nephrectomies. One of these, operated upon during the fifth or sixth month of her pregnancy, was delivered of a healthy baby, now five years old. The mother, however, died a few months after the baby's birth of general tuberculosis.

The most frequent cause for nephrectomy is tuberculosis, it being more frequent than all the others put together. In our series we had thirty-four cases: seven, or 20%, died in the hospital; six, or 17% of the total, have died since; or, expressed differently, six, or 22% of the twenty-seven survivors, have died, one of the six dying from a cause absolutely unrelated to the original operation. Twenty-six of the cases occurred in women; eight in men. These mortality figures are almost identical with those given by Israel (*Folia Urologica*, 1911, VI, 257) based upon 1023 collected cases, and Kümmell in a report of 125 of his own cases. (*Therapie der gegenwart*, Berlin, LI, No. 12, pp. 529).

The conclusion that I have reached, after studying the above results of nephrectomy, is that if recovery from the operation has been complete, the expectancy of life is the same as for a person who still possesses two good kidneys. As I myself am included in this list of nephrectomies, you easily understand why this conclusion is so comforting to my peace of mind.

Two of the cases included in this list deserve special mention as showing the possibilities of renal surgery, and the small amount of kidney tissue necessary to support life. Miss A., first operated in May, 1903. At that time she was suffering with stone in the right kidney, and some pelvic trouble. The pelvic trouble was

corrected, and both kidneys examined, a stone being found not only in the right kidney, but also one in the left kidney. The stone in the right kidney was removed at the time, the kidney, though somewhat disorganized, being allowed to remain, and the patient advised to return very shortly to have the other stone removed. She waited, however, for a year, and by that time the left kidney was almost destroyed. Owing to the known condition of the right kidney, the remnants of the left kidney were brought together as carefully as possible. A year and a half later the patient again came in with more trouble in the right kidney. This time many stones were removed, and though now very little healthy tissue was left the kidney was not removed. Knowing the condition of the two kidneys it seemed hardly possible that so little renal tissue could support life. That was seven years ago. Since then she has married, and is to-day in the best of health. Mrs. J. gave a history of cystitis over a period of two and one-half years. October 14, 1911, she was seized with chills. Fever went to 104°. Blood count showed leukocytes, 12,000; polynuclears, 87.6%. Left lumbar nephrectomy. Kidney studded with miliary abscess, which in places were beginning to coalesce. Patient made a beautiful convalescence, and returned home in three weeks. Suddenly, on December 12, two months later, she was seized with another attack similar to the first, but on the right side. It seemed hopeless, but in view of the fact that she was voiding urine of sufficient quantity, and of good specific gravity, I decided to give her a chance. Under gas anesthesia, therefore, I explored the remaining kidney. The kidney was incised at both poles. In the upper pole found a mass of necrotic tissue, which was scooped out with the finger. The lower pole contained many small foci of infection. I stripped off the entire capsule, introduced a large amount of gauze, partially closed the incision, and put the patient back to bed to die. A week ago she reported that she had gained sixteen pounds in weight, and was feeling better than she had for years. It was, to say the least, an agreeable disappointment.

There is, in our series of kidney cases, another deserving of special mention, because of the peculiar family history. Mrs. S. presented herself October, 1910, with a tumor in the region of the left kidney. When she stated that her mother, grandmother, two aunts and an uncle, all on the mother's side, had died of polycystic degeneration of the kidney, there could be no ques-

tion of diagnosis in her case. She was three months pregnant at the time. It was deemed best, in order to throw as little strain as possible on the damaged kidneys, to interrupt the gestation. This was accordingly done, the tubes removed to prevent further conceptions, and the ligaments shortened to correct a retro-displacement. Through the abdominal wound the kidneys were examined. The left kidney was as large as a baby's head, while the right kidney, as was expected, proved to be already almost twice its natural size, and showing distinct evidence of the polycystic degeneration. Patient was seen a few months ago, and as yet the disease has shown no further progress. I believe that such a family history as this patient presented is absolutely unique.

My researches into the realm of nephropexy were begun with fear and trembling. I dreaded writing to the attending physicians, or to the patients themselves, for fear that the reports would be as unsatisfactory as I had been led to believe they would be from my reading of the experiences of others, and the known disrepute of the operation. It was extremely gratifying to read such reports as these: "fine," "better than ever," "fine and fat." There were naturally a few discordant notes in the harmony.

In the last decade sixty-one patients were submitted to the operation, many of them associated with operations upon the pelvic viscera or the appendix. Of the sixty-one patients reports were obtained from fifty-four. Five of these considered the operations failures, reporting their condition the same as before operation. Four considered themselves greatly improved, but stated that they sometimes suffered after a hard day's work, or at their menstrual period. Forty-five had complete cessation of the symptoms of which they had previously complained. Forty-five cures out of fifty-four cases would certainly indicate that the operation has been unjustly criticised. Perhaps the criticism is due to the fact that proper judgment has not been used in the selection of cases, or perhaps the technique has been faulty. With the exception of three or four cases, all of the cases were operated by the usual Baldwin technique, as follows:

The usual incision being made in the loin, the kidney is forced into position by the hand of an assistant, and stripped of its posterior investment of fat, so as to expose the true capsule. This is incised longitudinally, care being taken not to wound the sub-

stance of the kidney. The edges of the incised capsule being caught with forceps, the capsule is separated from the kidney with the finger, so as to give a flap on each side from two to two and a half inches in length, and about the three-fourths of an inch wide. The flaps are cut or torn with the finger at each end, so that they can be brought out at right angles to the substance of the kidney. With a pair of scissors an incision is then made through the fascia and muscle at one side of the original incision, parallel with it and about one-half inch away, and of nearly the same length. A pair of forceps is passed through this incision and the corresponding flap of the capsule drawn through; the other flap being brought up into the original incision. Each flap is now apposed on each side by muscular tissue, and is fastened in its new position by three or four catgut sutures through muscle, fascia and flaps. The column of muscular tissue is in contact with the naked kidney, while the capsule upon each side soon is firmly united to the muscle and fascia. The incision through the superficial parts is now closed in the usual way, and without drainage.

This operative technique was published by Dr. J. F. Baldwin in the *Journal of the American Medical Association*, January 28, 1899. Some two years later Dr. Morris, and also Dr. Sturmdorf of New York, published methods almost identical with this.

The operation of nephrotomy is so frequently a makeshift affair, that it is difficult to draw any conclusions from the twenty-nine cases in our list. Many times it is done when nephrectomy would be indicated, but the general condition of the patient is too serious to allow the more radical operation. For this reason the mortality rate is higher than we would ordinarily expect. Six of the twenty-nine died: four died in the hospital of uremia; one died several weeks later from a general systemic infection; and one died a year later from general sarcomatosis, the operation having been done for a collection of pus around the kidney. The kidney was probably sarcomatous at the time, but it was not evident macroscopically.

There remains one other class of patients to be discussed, namely those whose kidneys were decapsulated, as advised by Edebohl. At first glance it would seem as if our figures would serve to absolutely condemn the operation, yet in the only case where it was given a fair chance it was highly satisfactory. At least the patient lived long enough (nine years) to become a bum

and a jail-bird, finally dying of an overdose of morphine. Altogether, six patients were treated by this method. Five of them were in desperate condition at the time and were subjected to the operation only as a last resort. In four of these cases the operation did no good whatever, although it is doubtful if it hurried their demise. The other case, a young girl, had had complete suppression for forty-eight hours preceding the operation, and was absolutely moribund, yet within eighteen hours following the decapsulation she passed thirty ounces of urine. She rallied from the operation, but died six months later of uremia.

It may be of interest to mention the rapidity with which this operation can be done. In the case just cited two incisions, one on each side, were made, the capsules stripped off, and the wounds completely closed in fourteen and one-half minutes. In another case both kidneys were decapsulated, and through the incision on the right side the appendix was removed, in eighteen minutes. In another case a supra-vaginal pan-hysterectomy was made, and the kidneys decapsulated, in twenty-five minutes. Considering the rapidity with which this operation can be performed, and the slight amount of shock following, especially when gas anesthesia is used, it would seem that it should be more often tried.

I am seriously contemplating its performance in my next nephrectomy case, where symptoms of suppression in the remaining kidney come on. An autopsy in one of our cases showed the remaining kidney to be the seat of an acute congestion, which I believe might have been relieved by a prompt decapsulation. An operation of this sort could be done in the patient's room, if necessary, and could easily be performed in less than ten minutes. It could do no harm, and might do a deal of good.

In this paper I have said nothing concerning diagnosis, or the newer functional tests. I believe that our patients should always be given the benefit of the doubt, and operated upon if there is even the slightest hope of a successful issue. It may hurt the surgeon's mortality record, but what is a mortality record balanced against a few lives saved? Going over our cases, I am sure that there are several of them alive and well to-day who would have been refused operation had we been too careful of our record.

## A CASE OF HYPERNEPHROMA IN A HORSESHOE KIDNEY

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**A**LTHOUGH Hypernephromata nowadays are considered as the most commonly occurring tumors of the kidney and though a great number of them have already been more or less minutely described, the following case may be of some interest on account of some rather uncommon circumstances.

The case concerns a laborer, A— F—. 58 years old. He was admitted to the Maria Hospital on September 5th, 1911, and then gave the following account of his previous state of health: no cancerous ancestry; except for a typhoid fever forty years ago he always felt perfectly well until one year ago, when he began to notice a slight stitching pain in the left axilla and subsequently also in both arms, chest, right leg and in the lumbal region. The pain was however so slight that he did not pay any attention to it and continued his usual work. Three weeks ago the pain suddenly became very violent so that he could scarcely move. Attacks of epigastric pain became very frequent and he lost strength and emaciated rapidly. He never noticed hematuria nor anything else abnormal about the urine.

On examination of the patient the following was found: he is a tall, strongly built man, highly emaciated and weakened, the skin very pale with a slight bronzy shade (no notice however was taken of this circumstance as the man was of dark complexion), arteries somewhat sclerotic, nothing remarkable from the heart, lungs slightly dilated, abdomen somewhat distended, distinct peristaltic motion in the right hypogastric region, in the vicinity of the navel a tumor is to be felt, slightly larger than a fist and three-fourths situated to the right, the rest to the left of it; the tumor is of a firm consistency, its surface knotty, no tenderness worth mentioning when palpated, the tumor slightly movable; in the left axilla another tumor of a walnut's size is found firmly fixed to the fourth rib, a very great tenderness at even the least contact is noticed on the sternum; nothing abnormal is to be found in the motility or the chemism of the stomach, bowels act somewhat slowly; the diazotest of the urine gives a strongly positive result, but no other alterations are to be found, indican not increased.



An X-ray examination was made, when the tumor was located to the duodenal region, a slight ptosis of the stomach was to be seen, however it emptied itself normally. On account of the patient's cachectic condition no further close examination was made.

He complained of ever increasing pain in various parts of the body and lastly died on October 5th, highly cachectic.

During the whole time the urine had shown no abnormal alterations save the above-mentioned, its quantity was 1,000-1,500 cub. cm. per day.

The necropsy was performed about eighteen hours post mortem. It was then found that the abdominal tumor occupied almost the whole right part of a horseshoe kidney; on the top of the isthmus connecting the upper poles of both kidneys and on the top of the left kidney lay a triadric body, its outward appearance somewhat reminding of a suprarenal capsule, though many times larger, on the right side no suprarenal capsule was to be found. (This formation and the tumor will be more minutely described below). Moreover numerous metastases were found in various organs: on the left kidney's anterior surface one of a pea's size, yellow, slightly protruding, most of the mesenterial and mediastinal lymphoglandulæ enlarged, containing numerous metastases, the liver's surface covered with numerous metastatic nodules from a linseed's size to that of a pea, its parenchym contains them in smaller number, in the myocardium three metastases, all of a pea's size, the above mentioned metastasis in the left axilla was seen to have grown through the fourth rib and the pleura, another one, large as a hazel-nut, on the inner side of the fifth rib on the left side had also grown through the pleura, in the lungs no metastases were to be seen, no thorough inspection of the bone-system was made.

Concerning the horseshoe-kidney as such, it may here only be mentioned that the isthmus connecting the upper poles of the kidneys has the following dimensions: length about 70 mm., height about 35 mm., thickness about 8 mm., the left two-thirds of it consist of normal kidney-tissue, the right one-third forms a part of the tumor. No important anomalies in the distribution of the blood-vessels or in the renal pelvis and uretheres were to be found, the right-side hilus is situated about 4 cm. lower than that on the left side. The left kidney shows no morbid alterations except the above mentioned metastasis on its anterior surface, size 115x75x40 mm., weight 200 grms.

*The Tumor* (macroscopical aspect): the right kidney is almost entirely occupied by a well limited tumor leaving only at the lower pole and near the hilus insignificant remnants of the kidney-tissue. Its size is 165 x 110 x 80 mm., weight 550 grms.; the surface is knotty, consisting of numerous lobules from a pea's to a cherry's size, with a firm fibrous capsule of a grayish color. The section-surface shows that the tumor is composed of a great number of cystlike rooms, those at the tumor's surface corresponding to the above mentioned lobules, and each one having a distinct capsule of sometimes 2 mm. thickness. The contents of these rooms are preponderantly hemorrhagic, but small patches of grayish-yellow, sometimes half-liquid mass are to be seen, and this latter constitutes the principal contents of the smallest lobules.

The little that was left of renal parenchym showed no alterations to the naked eye, the pelvis was also intact, nor could it be detected that the tumor should have grown into the Vena renalis or its larger branches; no concretion between tumor and neighboring organs.

*Suprarenal Capsule* (macroscopical aspect): the above mentioned triadric body, situated on the top of the left kidney and the isthmus was to the right in direct contact with the tumor, thus receiving an impression on its surface from the adjoining tumor-lobule; besides that it presented an even surface, the anterior one having only a slight groove and the posterior surface a small hilus-like formation where a few thin blood-vessels entered. The whole body has a lax, pulpous consistency, with a thin covering of connective-tissue, where no perforation could be detected; measures 95 x 65 x 40 mm. weight 65 grms.; the section-surface grayish-red with a few tiny yellow patches. Its outward appearance and position made one suspect a suprarenal capsule (which was found to be true at the microscopical examination). The cause of its unusual dimensions will be spoken of below.

*Microscopical Examination* (tumor). The tumor-masses, i. e. the contents of the lobules, show a highly varying aspect; the cells are of an irregularly polygonal shape, in the protoplasm small vacuoles (after fat dissolved by the treatment with alcohol), nuclei round, of middle size, with distinct chromatine-network. In its typical parts the tumor has an alveolar structure, the stroma consists mainly of fine capillaries, sometimes accompanied by a tiny bundle of connective-tissue, and forms a network of oblong meshes, wherein the cells are lying with their bases immedi-

ately to the capillary (there being no kind of *membrana propria*); each mesh thus contains two rows of cells, yet more compact alveoles with three-fourths cell-rows are to be found.

The above is mainly found in the smallest lobules where it is predominant, in the larger lobules only small scattered fragments responding to the above description are to be seen.

In the larger lobules the tumor has a more adenomatous and cystic appearance. Here are formations strongly reminding of tubular glands, with a single row of cells. The cells vary greatly in form and size, the irregular, polygonal shape still prevails, but numerous cells simulating a low cubical epithelium and such of a high cylindrical shape are found. It is noteworthy that in the "adenomatous" parts only longitudinal sections of the "tubules" are found. The caliber of the tubules varies very much, in fact all transition stages from the alveolar to the tubular structure, and from that to the cystic are to be found: in some of the alveoles a narrow lumen is detected between the two cell-rows, in some it is slightly wider a.s.o. till the impression of tubular and lastly cystic formations is conveyed. The cystic rooms are often richly papilliferous and the origin hereof can be traced to small modifications in the alveolar parts, where we often see a short capillary-branch with affixed cells penetrating into the alveole; the whole formation might best be described as a rudimentary papilla.

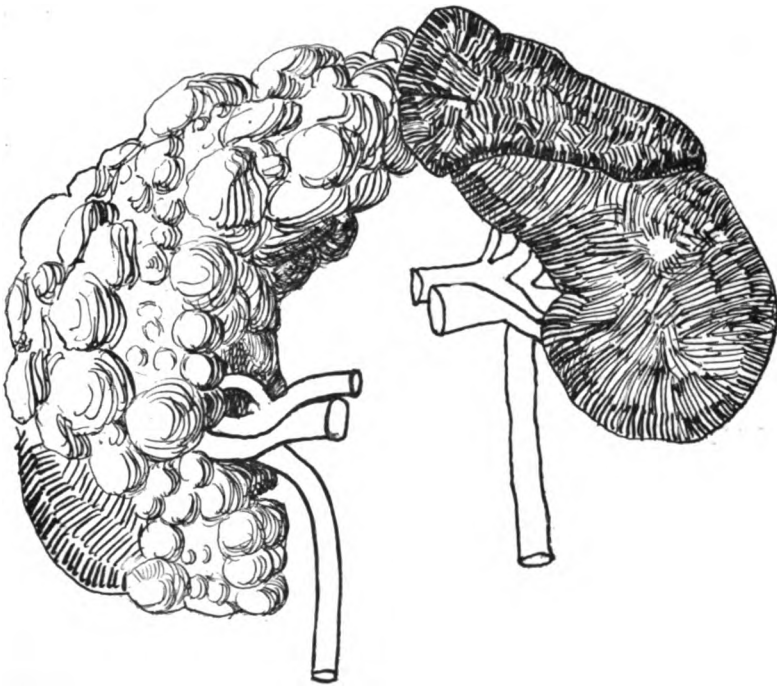
In most of the lumina, especially the cystic rooms, but also in many of the narrowest alveolar slits hemorrhagies are found, generally filling up the whole lumen. They are, even when situated within the same fibrous capsule, of very different dates, some being quite fresh, with easily staining red blood-corpuscles, some on the other hand consisting of amorphous granulated masses or scattered groups of pigment. In some of the lumina (of all dimensions) a structureless homogeneous substance is found, either alone or in connection with the hemorrhagies, and often containing isolated round and turgescient tumor-cells in great numbers. A few lumina are perfectly empty.

The stroma in these tubular and cystic parts consists also mainly of capillaries, but the connective-tissue is here more in evidence, in as much as thicker bundles of it, coming from the fibrous capsule, form a network of wide meshes and thus subdivide the lobule; they also contain the larger blood-vessels; especially the cystic parts convey the impression of a more developed stroma, being comparatively poor in cells, and a couple of cystic rooms

often filling up the whole space in one of the above mentioned meshes.

In the kidney-tissue adjoining the tumor there are no alterations of importance; not far from the tumor it has a perfectly normal aspect, successively we see alterations due to stasis (dilated capillaries, edematous inhibition of the connective-tissue, degeneration of the parenchym-cells), and proliferative processes in the close vicinity of the fibrous capsule. No isolated tumor-nodules are found in the renal parenchym.

(Suprarenal capsule). Although sections were made from many different parts of this organ, only on one of them a small



circumscribed place was found to have retained the typical structure of the cortical substance. The rest presented the picture of a highly anaplastic tumor-mass without any definite structure and with a great variety of cells, there being some resembling those in the kidney-tumor and others like them, but smaller, somewhat reminding of cortical substance-cells, and on the other hand large spindle-cells in great numbers; all these cells lie singly or in small groups confusedly mixed; in quite a number of these cells, especially the spindle-cells, mitoses are found. There is no stroma  
with mentioning, a few scattered capillaries and bundles of con-

nective-tissue is all that is to be found, some of the latter emerging from the thin fibrous capsule that envelopes the organ. This capsule could not microscopically be perceived to have been grown through by the tumor-masses.

(Metastases in heart and left kidney). They present many features in common and may therefore be described together. The cells, strongly reminding of those in the kidney-tumor, are forming small compact groups along the walls of the capillaries, but no distinct alveolar structure arises, the capillaries not forming any network and being more scarce than in the primary tumor. These small cell-groups thus lie somewhat scattered and separated from each other through a scanty connective-tissue containing numerous cellular elements of an inflammatory nature. No fibrous capsules surround the metastases, which however present a very sharp limit towards the adjoining tissues.

Already the macroscopical appearance of the tumor allows the assumption of a hypernephroma; the sharp limit against the kidney-tissue by means of a fibrous capsule and the numerous hemorrhagic patches are comparatively characteristic. We only miss the yellow color ensuing from the high per cent of fat found in these tumors. This is easily understood when it is taken into consideration that the alveolar parts, which are the most likely to give rise to a yellow color, were very scarce in proportion to the tubular and cystic parts (where the cells were rather poor in fat).

The microscopical examination only confirms this assumption. The circumstance that the greater part of the tumor presented a picture considerably differing from the typical alveolar structure, is mostly to be ascribed to a high anaplasia (which conforms with the obviously great malignity of the tumor), and to some degree also to secondary alterations through hemorrhagies, exudative and necrotic processes.

Numerous descriptions<sup>1</sup> tend to show that the microscopical aspect of the hypernephromata is highly varying; that the cystadenomatous appearance sometimes dominates the whole picture the following diagnosis shows: cystadenoma suprarenale aberratum papilliferum.<sup>2</sup>

In the case above described occurs the noteworthy coincidence of an evolutionary anomaly with a malign tumor. How far this anomaly has had any influence upon the development of the tumor is difficult to decide in casu; I have not been able to find any such cases mentioned in the literature accessible to me, and

whether malformations of the kidneys of the above mentioned character are apt to increase the morbid dispositions of these organs seem doubtful. It is a well known circumstance that certain anomalies originating during the embryonic life, such as nevi, supernumerary mammae, rests of branchial ducts, not to mention other examples, can give rise to malign tumors. There seems to me however not to exist any direct parallelism between these and the present case. Concerning the hypernephromata we have the almost generally accepted theory of Grawitz that they arise out of suprarenal rests in the kidney. It does not seem altogether unlikely that in the present case a very large "rest," viz. the whole right suprarenal capsule, can have existed. A. O. J. Kelly<sup>3</sup> mentions a case where the right capsule was missing and a hypernephroma was found in the corresponding kidney. This would then present one notable analogy with the case here described. The circumstance that no right suprarenal capsule could be found in the present case, though specially sought for, speaks to the favor of it being missing, inasmuch as matters were not complicated through adherences or greater dislocations of the organs, nor is there any strong reason to suppose a concretion of both capsules, such being extremely rare (Orth cites one case, where both capsules were connected by a long isthmus),<sup>4</sup> and there being nothing in the outward appearance of the capsule indicating it. I think it therefore most probable that the triadric body represents the left suprarenal capsule. Its unusual size is partly to be ascribed to the vast metastasis found in it (that it is a metastasis, and a very rapidly growing one seems obvious on account of the enormous anaplasia and the fact that still eighteen hours post mortem it contained quite a number of mitoses. Also the comparatively sudden cachexia less than two months before death speaks to the favor of a relatively late metastatic growth in the suprarenal capsule). But the presence of this large metastasis does not seem to me to account sufficiently for the unusual size, particularly if it is considered that the fibrous covering was in no place perforated by this obviously very malignant and destructive new growth. Therefore I do not think it unlikely that the left suprarenal capsule primarily was larger than usually, perhaps a kind of compensatory hypertrophy, the right one being absent, and perhaps this latter never attained the usual development, thus favoring a "total dislocation," which was possibly promoted by the anomalies in the kidney itself.

From a clinical point of view the present case does not offer

very much of interest. Many symptoms that would have permitted a sure diagnosis *intra vitam* were missing and a number of clinical methods of examination were not undertaken on account of the patient's weak and hopeless condition (e.g. insufflation of the colon).

Only a few circumstances may here be mentioned: as above said the urine-test constantly gave a negative result; conspicuous is the absence of hematuria during the whole illness. P. Albrecht<sup>5</sup> cites a case without hematuria where the pelvis was grown through and infiltrated by the tumor and then another case with hematuria and no perceptible lesion of the pelvis. In the present case I think the absence of this symptom was due to the thick fibrous capsule enveloping each lobule and the pelvis being intact. Metastases in the bone-system as initial symptom have sometimes been described. Albrecht mentions four cases out of twenty-eight. Also in the present case the earliest symptom was a slight pain in the left axilla where later on a tumor of a walnut's size developed in the fourth rib.

Although there exists a rich literature about kidney-tumors I have not been able to find in that to which I have access any cases analogous to the present one mentioned. The coincidence of a kidney-tumor and a malformation of the kidney thus seem to be of a somewhat rare occurrence and it will therefore be difficult to draw any conclusions regarding the possible relationship between these two circumstances before more similar cases are known.

Before I finish I beg to express my sincerest thanks to Dr. J. Hagelstam for the courtesy with which he placed the present case at my disposal and to Prof. Rud. Kolster, to whom I feel very much indebted for his valuable advice during the microscopical examination.

<sup>1</sup> Busse: Nierengeschwülste, *Virchows Archiv*, Bd. 157, H. 2. Manasse: Zur Histologie und Histogenese der primären Nierengeschwülste, *Arch. für patholog. Anatomie*, Bd. 143, H. 1, and Bd. 145, H. 1. Mc. Weeney: On kidney-tumors derived from suprarenal rests, *Brit. Med. Journ.*, 1896, No. 1832. Grossheintz: Ueber Hypernephrome, *Zeitschr. f. Urologie*, 1907.

<sup>2</sup> Fr. Dahl: Nierengeschwülste entstanden durch versprengte Nebennierenkeime, *Hospitalstidende*, 1899, H. 6 and 7.

<sup>3</sup> A. O. J. Kelly: Über Hypernephrome der Niere, &c., *Ziegler's Beiträge*, Bd. 23, H. 2.

<sup>4</sup> Orth: *Lehrbuch der Pathologie*, 1889.

<sup>5</sup> P. Albrecht: Beiträge z. Klinik und pathol. Anatomie der malignen Hypernephrome, *Arch. für klinische Chirurgie*, Bd. 77.

## SEXUAL IMPOTENCY IN THE MALE \*

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### CHAPTER IV—IMPOTENCE FROM DISORDERS OF THE ERECTION POWER

**E**RECTION is a reflex process, which as a vasomotor phenomenon presupposes the excitation of the central apparatus as well as the unhindered conduction of centripetal and centrifugal stimuli. The centers of erection are subordinated on the one hand to the vasomotor center in the spinal cord, but also through certain connecting paths to the psycho-sexual center in the cortex.

The erection center is not excitable by the WILL ALONE; conceptions of an erotic nature or sight, sound, or smell perceptions must be present as connecting links. As E. Müller has shown, erection still occurs in the laboratory animal, when the cord has been cut high up (in the cervical region), and also when the conus terminalis or the sacral and the lumbar cord has been extirpated. Müller accordingly accepts the ganglia and sympathetic nerve plexus of the pelvic floor as the seat of an erection center.

Yet there surely exists besides these an erection center in the segments of the spinal cord corresponding to the first to fourth sacral nerves. (Eckhard.)

Erection can be set in action through several different forces:

1. From the brain, only however, by means of representations of a sexual character.

2. From the spinal cord through excitation of the genito-spinal center.

3. From the periphery by means of mechanical, tactile stimulation of the skin of the penis, further by the parietal tension of the filled seminal vesicles, by tactile stimulation of the prostate and the posterior urethra (erections from catheterization and massage of the prostate), and finally from pressure of the full bladder upon the nervi erigentes.

Erection is further subject to certain inhibitory influences, which can apply to the center as well as to the periphery. The existence of such inhibitory factors is proved by the classical experiment of Goltz, showing that after section of



the spinal cord erection occurs much more easily, as well as by the experience in man, that erection can fail in spite of libido, either from central causes, on account of anxious feelings and inhibitory reflections, or from peripheral causes such as pain or uncomfortable feelings in the genitals. It is just the existence of these central inhibitions, which determine the moral force of civilized man, who is able to suppress the libido when his reasons condemn the fulfillment of the sexual act.

From what has been said it becomes clear that impotence due to alteration of the erectile faculty can occur, firstly, if the stimuli carried to the sexual center are not of the necessary intensity, or if the erection center is reduced in sensitiveness, or finally if the inhibitions triumph over the stimuli for erection.

We shall have to consider, then, in this chapter the impotence of old men and in somatic conditions of exhaustion, impotence in organic spinal diseases and finally the so-called "nervous psychic impotence."

As a rule in healthy men, who have led a hygienic life, the normal sexual power does not come suddenly to an end. The erections diminish in strength in old age in proportion as the libido declines and the involution of the genital glands begins. The erected organ no longer has the firm consistency of youth, and the erection declines in duration.

Rarely, however, do men come to us with this complaint, for they rightly regard the appearance of impotentia senilis as a physiologic result of commencing senility. Only when the decline of sexual desire does not keep pace with the other signs of old age, under pathologic conditions, or when, as sometimes happens, the libido is much increased ("old men's love"), do the patients come to the physician and demand—as a rule in vain—an improvement of their sexual power. It is often, moreover, as Fürbringer declares, rather an "impudentia muliebris" (female shamelessness or exaction) than a true impotence, which causes the consultation with the physician.

Besides this physiologic decline in sexual power we often hear our patients complain of a diminution of their erectile faculty, if their general state of health has suffered from

wasting disease or immoderate exertion and above all from sexual excesses. We have mentioned above the fact that often for a long time after febrile diseases, such as malaria and typhoid, erections do not return in desired intensity.

Conditions of sexual exhaustion are, however, of most importance in producing incapacity for erection. As we shall perceive more in detail in a later chapter, all abnormal sexual satisfactions, when indulged in excessively, lead in the course of time to diminished erection.

Excesses in masturbation as well as in normal coitus, and also interrupted coitus, may have this result. We can, however, make differentiations in the form of impotence resulting from the particular kinds of sexual abuse. We may state right here, that in masturbators the impotence finds expression especially in the deranged mutual relations of the two reflex centers that is in premature ejaculation; whereas excesses in normal coitus usually lead at first to the decline of the erectile power, and later also to alterations in the ejaculatory faculty.

The pathogenesis of these forms of impotence, of senility and of exhaustion, lies chiefly in the diminished excitability of the erection-center, partly also in the fact that in old roués the sexual stimuli reaching the erection-center no longer have the proper intensity required to set the reflex processes in motion.

The diminished excitability of the sexual centers, partly also the interruption of the centripetal and centrifugal paths is the cause of those forms of impotence which we observe in diseases of the spinal cord.

Tabes dorsalis takes the lead among these. Many patients complain already in the prodromal stage of disturbances in their sexual power. We hear most frequently the statement that the erections are weak, so that on account of its deficient stiffness it is hardly possible to insert the organ. It is a well-known fact, moreover, that in some patients, already in the premonitory stage, periods of greatly increased libido (satyriasis) with insufficient erections occur, as well as erections of great duration and intensity (see under priapism). As soon as the well-marked signs of ataxia have developed the symptom of diminished erectile power is always present.

These conditions are so frequent that it is a rule in every case of impotence that comes to the physician's attention to make a careful examination of the nervous state as well as of the urine, in order to discover a latent tabes. And actually genito-urinary specialists are only too often the first to make a diagnosis of tabes in such cases. In advanced cases of ataxia the erectile power usually declines steadily till it finally dies out entirely. Sexual desire meanwhile usually remains quite unchanged; the often accumulated pollutions, which take place with relaxed penis, testify to the intact condition of the genital glands and their function.

We will also mention here that impotence can occur in spinal tabes in still another way. For example two young tabetics, brothers, complained to us, that their sexual desire was quite unchanged, but they could never obtain complete enjoyment of the sexual act, because the skin of the penis had become so anesthetic that friction of the glans did not reach their consciousness and ejaculation was thereby unduly postponed (*ejaculatio retardata*).

The conditions are similar to tabes in spinal meningitis, namely in syphilitic spinal meningitis. The disorders in sexual power are, however, not so constant and typical in these affections.

In spinal meningitis for example priapism is far commoner than in tabes. A case described by Brachet is often quoted of a man paralyzed in both legs, who in spite of his paraplegia begot two children.

Finally we have to mention that in railway paralysis or "railway spine," impotence from lack of erections is a characteristic symptom.

#### CHAPTER V—NERVOUS, PSYCHIC IMPOTENCE

**C**APACITY for erection can fail for the reason that the centrifugal inhibitions have such a powerful effect that the erection-center is not intensely enough excited to discharge the reflex process of erection: we designate such conditions as nervous, psychic impotence.

The first main group of the patients in this class consists of the "imaginary impotents." As a part of the symptom-complex of any general neurosis, such as neurasthenia or hysteria, the hypochondriac idea of impotence appears temporarily or permanently. The lack of confidence, the imagined prospect of suffering a fiasco in case of opportunity for practicing coitus prevent the patient from making the attempt; they consider themselves impotent, and hence actually are so. The conscience of these subjects is usually, indeed, weighed down with the reproaches for their youthful sins (masturbation), and by exaggerated conceptions of having wasted their youthful strength. And the reading of so-called popular scientific works [and especially often pernicious advertising quack literature] on the injurious effects of youthful dissipation does the rest in establishing in the minds of these visionary patients the fixed idea that they are incurably impotent. It requires in such cases the greatest skill in persuasion, the most carefully executed suggestive psycho-therapy in order to banish this fixed idea. The first successful coitus usually effects the whole idea of impotence from the mind without a trace, as by a stroke of magic.

We can only pity those patients, who as a result of their loss of self-confidence have not the courage to confide in a conscientious physician, but find ever new support for their hypochondriac ideas in the irresponsible descriptions of masturbation and its supposed consequences (impotence, tabes, madness, etc.) in the well-known quack "literature," and thus lose all their life-hope.

There are other observations concerning these imaginary patients, who figure as representatives of another form of psychic impotence. We hear not rarely the peculiar complaint that a man can have intercourse only under particular circumstances or only with a particular category of women, while he is quite impotent towards other women (and frequently toward his own wife!). This is called relative impotence.

A definite peculiarity is the female partner (the color of the hair, the perfume, etc.) alone produces the necessary excita-

tion of the centers to cause an erection. This is called fetichism. Young husbands form a large part of this category of psychic impotence, who discover to their horror that, although they were formerly quite virile, on their wedding night they have not the least erection. And then we often hear the complaint, "I have always been afraid I should not be strong enough to carry out the defloration."

Another inhibiting conception made one of our patients impotent for over a year after his marriage. He lost the erectile power each time that he thought of the possibility of infecting his wife with gonorrhea. While he succeeded perfectly in illicit intercourse, it took much pains and long persuasion to convince him that there were no traces of gonorrhea to be found in him. Finally conjugal intercourse succeeded under the influence of wine and after that there was no more trouble.

A certain degree of such impotence is physiologic. There are of course in perfectly healthy men emotional states (physical pain, grief, and anxiety), which constitute an absolute inhibition for the erection center, although the sexual desire may remain unimpaired. This is temporary impotence.

This form of functional disorder becomes pathologic when out of such a temporary impotence one of long duration or even of a permanent character develops. Thus the fear of infection, syphilophobia, of impregnation, and in one of our cases of an epileptic attack, further with especially impressionable men the suggestive power of a sort of bewitching—which is still common among prostitutes as an intimidation—all these can produce the severest, most obstinate form of psychic impotence. Let me give as an example of the inhibitory power of compulsion-ideas an observation of Maynan (*Ann. med. and psych.* 1885, cited by Krafft-Ebing) concerning a student twenty-eight years of age, who had formerly indulged much in masturbation. He had to struggle a great deal with the number 13 as a fixed idea. At every attempt at coitus the compulsion-thought of the unlucky number prevented erection and so intercourse.

I may here add briefly that we must include all the sexual perversions in the category of psychic impotence, since we have

adopted as our criterion of normal sexual power the ability to perform coitus in the normal manner.<sup>1</sup> All paresthesiæ of the sexual sense, perversions of the sexual impulse, that is, excitability of the sexual nature by inadequate stimuli, belong here; namely, sadism, masochism, fetichism, and sexual inversion.

The stimuli reaching the erection center from the periphery may be too weak and thus lead to impotence. This is **ATONIC IMPOTENCE**. The defect here is based on the diminished excitability of the peripheral nerve-endings.

Diminished intensity of erection results after all sorts of venereal excesses, in which interrupted coitus and excessive natural congress play the principal rôle, and eventually erection may wholly disappear. In these cases the decline in erectile capacity certainly goes often hand in hand with that of the sexual desire. This form of impotence cœundi is one of the commonest that is observed.

Although we are not always able in the examination of the patient to find out the injuring cause, we must not forget how little credible are patients in questions concerning their sexual lives, and that we must not attempt to measure the sexual power in different men by the same standard. Performances which must be interpreted as thoroughly satisfactory sexual power for one man, are for another sure signs of commencing impotence. The same holds true for the judgment of the history concerning the sexual life and its abnormalities; onanism and excesses.

If we miss in the history statements of offenses against sexual hygiene, then we generally meet with another factor, which has similar effects upon the sexual power, namely, gonorrhea. And indeed it is not those neglected, badly treated or quite untreated cases with anatomical sequelæ of gonorrhea, but just those cases of chronic gonorrhea which were energetically, and often too energetically treated, in which we observe disorders of potency, "functional gonorrhea sequelæ," as we can rightly call them.

<sup>1</sup> In a certain sense the sexual perversions belong to the group of changes in the libido.

Whether the impotence takes place only indirectly as a result of post-gonorrheal neurasthenia, or whether the gonorrheal impotence is to be regarded as the cause of the other neurasthenic symptoms, cannot be definitely ascertained. [In many cases "gonorrheal impotence" is presented without any neurasthenic symptoms whatever.]

Different factors must be held responsible for the origin of "gonorrheal impotence," which is a true atonic impotence.

The prolonged continence practiced during gonorrhea, also in its chronic stage, often brings on a certain irritability of the sexual centers, in other cases, however, a subnormal excitability of them. In this manner impotence may sometimes take the form of "irritable weakness," and at other times it is a true atonic impotence.

But it is the anatomic condition of the posterior urethra and the prostate, whose extremely rich nerve supply cannot remain unaffected by the pathologic process in the urethra and prostate, that is chiefly responsible for the functional disturbances, which attend chronic gonorrhea.

This is of course no specific result of the gonococcic infection, but merely the result of the chronic inflammatory changes in the neighborhood of the sensory nerve-endings in the urethra, and can be caused not only by gonorrheal urethritis, but also by the chronic inflammatory hyperemia of masturbation and sexual excess (*congressus interruptus*). Chronic inflammation of the posterior urethra with *collicultis seminalis* leads either to a hyperesthesia of the mucous membrane, which then results in continual centripetal excitations of the genital reflex centers (impotence from irritable weakness), or it leads to a more or less marked anesthesia of the mucous membrane as a result of pathologic changes in the nerve-endings, and atonic impotence results. The changes in sensibility in chronic gonorrheal inflammation of the prostate play the same etiological rôle.

As regards symptoms, atonic impotence occurs in two forms. Either erections do not occur at all in spite of undiminished libido, and there is an immediate excitation of the ejaculatory center, whereby the semen is poured out without any erection

(see Diurnal Pollutions); or erections do occur, but are so weak or of such short duration that an introduction of the organ is impossible. And it depends upon the condition of the ejaculatory center, its excitability and resisting power, whether a retarded or a precipitate ejaculation results.

The criteria of atonic impotence are, besides the clinical symptoms of weakened or lacking erectile power, changes in the tactile sensibility of the posterior urethral mucosa. Chronic hyperemia of the mucous membrane, which causes the marked hyperesthesia, manifests itself also in the endoscopic in the swelling and sponginess of the caput gallinaginis and the surrounding mucous membrane. In more advanced cases, this hyperesthesia of the mucous membrane passes into a more or less marked anesthesia. Among the commonest accompanying phenomena of this category of impotence are disorders of the urinary system, such as dysuria, polyuria, spasm of the sphincter, as well as paresthesia of the skin of the external genitals and neuralgia. (Prostatic pain, irritable testis.)

(To be Continued)



# REVIEW OF CURRENT UROLOGIC LITERATURE

The Editors, with the collaboration of Henry G. Bugbee, A. Hyman  
and Walter J. Heimann.

## ZEITSCHRIFT FÜR UROLOGIE

Vol. VI, No 9 (1912).

1. The Treatment of Undescended Testicle. By Ottorino Uffreduzzi. P. 727.
2. A Rare Case of Organ-Duplication. By N. P. Trinkler. P. 751.
3. Certain Uncommon Reflex Sequelae of Hypertrophy of the Verumontanum. By Dr. Orlowski. P. 767.

### 1. Treatment of Undescended Testicle.

Uffreduzzi discusses in detail the various methods which have been employed in the treatment of this condition. He then states his own practice as follows: In unilateral cases the procedure is much simpler than in the bilateral. In the former, patients do not as a rule seek relief unless they have an accompanying hernia. In adults surgical interference should be resorted to according to the usual indications, but in boys, unless incarceration, irreducibility, or hydrocele is present, it is best to wait until after puberty. Meanwhile massage, careful traction, and treatment with thyreoidin may be tried. In adults the radical treatment of hernia should be instituted and then a simple orchiopexy should be performed. When, however, the retention is very high, orchiocelioplasty is the operation of choice. Castration is indicated in *hernia permagna* or occasionally in very old people.

*Bilateral cases.* Interference is inadvisable unless complications exist. Contrary to the common teaching, the author feels that such cases should never be touched before puberty as an early orchiopexy may, by destroying the nutrition of the testes and interfering with its spontaneous descent, prevent the further development of the gland, especially of its internal secretion. Not until after the fifteenth year and when the accompanying hernia gives rise to symptoms, should operative interference be instituted. Only one side should be attacked at a time, the easier one being selected first.

Prosthesis is indicated in cases where castration is unavoidable, as in new growths.

### 2. A Rare Case of Organ Duplication.

The subject was a girl 3 years of age. On external examination she presented two vaginal apertures, one on either side of the median line, two anal openings, two clitorides, and two urethral apertures from each of which urine was obtained on catheterization. On defecating feces were expressed through the anus and vagina of each side (bilateral recto-vaginal fistulae being present) which caused great pain to the patient. Relief was sought and operation advised. On exposing the abdominal contents the following state of affairs was made out. Corresponding to the position of the transverse colon were found two caeca

which had become fused in the middle line. An appendix was given off from the superior surface; the ileum came off the inferior aspect at the point of union of the two component parts. The two caeca were followed down on either side into two recta which opened externally by means of the two anal apertures above described. Two distinct bladders were found, a ureter leading up from each. There were two uteri each having one ovary. The left caecum and rectum were excised and the proscimal end united to the right caecum by a lateral anastomosis. Recovery was uneventful.

### 3. Uncommon Sequelae of Hypertrophy of the Verumontanum.

Orlowski emphasizes the association of an hypertrophied colliculus with a typical history of progressive impotence beginning in most cases with premature ejaculations. Bad sexual habits which interfere with the sudden fall in sexual excitement (such as takes place at the end of normal coitus) are at the bottom of this condition. Coitus interruptus, unsatisfied libido, frequent masturbation, whether manual or "contemplative," are the most common factors in this connection. Orlowski describes four cases which illustrate typical symptom complexes of colliculus hypertrophy and which were all relieved by cauterization of the verumontanum either by argyrol 20% or by the galvano-cautery.

The first case presented a swelling of the testicle which became very painful during sexual excitement. There was a history of premature ejaculations for seven years and of complete impotence during the last two years. The second patient's chief complaint was of a burning sensation in the urethra which he had had off and on for many years. He gave an interesting history of long standing perverted sexual habits.

In the third case the chief features were a long history of onanism and of unsatisfied sexual excitement and the presence of varicocele, testicular pains, defecation spermatorrhea, and ejaculation praecox. In addition, the patient presented numerous cardiac symptoms which led several physicians to diagnose cardiac neurosis and dilatation. The symptoms in the last case were: a sense of pressure in the bladder region, pain in the thighs on walking, and a feeling of "drawing together" of the parts on the close of defecation.

## ZEITSCHRIFT FÜR UROLOGIE

Vol. VI, No. 10 (1912).

1. Who Is the Real Discoverer of Böttcher's Spermatic Crystals? By P. Fürbringer. P. 807.
2. A New Remedy for the Rapid Destruction of Pus Cells and Gonococci. By Dr. Dufaux. P. 811.
3. Malignant Simple Tumors of the Testicle: Carcinoma, Sarcoma, Adenocarcinoma. By Arnaldo Vecchi. P. 837.

1. Who is the Real Discoverer of Böttcher's Spermatic Crystals?

According to Fürbringer, Böttcher's paper, which appeared in Virchow's *Archiv* in 1865, is not the earliest recorded description of the spermatic crystals which generally bear his name. The author has but recently come across a German translation of an Italian book, published in 1739, and bearing the title: "Antonii Valisneri Historie von der Ergengung der Menschen und Tiere" (Valisner's description of the reproduction of men and animals). In this book Valisner states that as early as 1699 a certain Dalempazius had already described the crystals under discussion in one of the published letters of Bernhard's "Nouvelles de la Republique des lettres." Valisner's book contains a copper plate engraving showing typical crystals lying among "seminal worms" (or "seminal animalcules," i.e., spermatozoa) and certain fantastic representations of human embryos which, according to the notions of the day, represented simply later stages in spermatozoan development. The engraving bears the legend: "Types of salts observed by Dalempazius in human semen." Fürbringer reproduces some of the originally figured crystals on a larger scale and points out that not only can they be recognized in a general way as corresponding to the bodies described 126 years later by Böttcher, but that they bear certain peculiarities of outline which the author has previously described as characteristic for these crystals.

3. Malignant Simple Tumors of the Testicle.

The author discusses 31 cases of simple tumors. He takes up first what he calls large-celled tumors of the testicle, a group in which he includes both carcinoma and sarcoma of previous writers. He has examined 24 cases of this kind and submits a tabular summary covering the most important individual features of these cases. He then discusses their common characteristics as follows:

*Age incidence.* Men from 26 to 61 years of age were affected; most commonly those between 30 and 40. The right side was involved 14 times, the left 10; never both sides together. In the great majority of cases the onset was insidious. Trauma plays no part in the etiology other than either first drawing the patient's attention to the

tumor, or accelerating its rate of growth. Similarly the frequency of malignant degeneration in ectopic or retained testes should be attributed not to any greater susceptibility to trauma, but to the underlying arrest of development which is responsible for such abnormalities.

The *size* of the tumor varied from that of a small hen's egg to that of a fetal head at birth, and the *weight* between 84 and 845 gms., but the size and weight bear no direct proportion to the length of time the tumor has existed. Growth is generally slow but progressive.

*Subjective symptoms* are usually slight, the patients complaining of a local feeling of weight and distortion. Only when the growth reaches considerable proportions do the characteristic lancinating pains supervene. These pains radiate to the inguinal canal and loin of the affected side. In the author's cases pain was always present when the spermatic cord became involved.

As a rule, however, the *spermatic cord* was free and was found on the upper and inner part of the tumor. In the great majority of cases the *epididymis* was very much involved. The *tunica* was usually thickened and hyperemic; at times filled with fluid, at times overgrown with the tumor.

The larger tumors were usually egg or pear shaped or else quite round. In some cases they extended up as far as the external ring or actually invaded the inguinal canal. The growths were usually soft, especially those exhibiting rapid growth, rich inflammatory infiltration or necrotic or hemorrhagic zones.

The covering of the growth is formed from the thickened tunica albuginea in which dilated veins twist in a plexiform arrangement. The surface is usually smooth but somewhat irregular because of the presence of nodules of varying sizes. On cut section the growth is found to consist of a single mass localized to the testis in early cases, but involving the epididymis and spermatic cord in the more advanced stages. The testicular tissue is compressed to the periphery and often entirely replaced by new growth. The same is true of the corpus Highmori and of the epididymis.

On cutting the tumor the knife meets with a fibrous or fleshy resistance. The cut surface is moist, shining, grayish in color with occasional yellowish or brownish spots; it is not uniform in appearance but is composed of elevated nodules which are separated from each other by strong fibrous septa. In the great majority of cases this nodular appearance is so characteristic that the tumor can be recognized merely by its macroscopic appearance.

Necrotic areas are common. They often undergo softening and form indefinitely circumscribed spaces filled with a characteristic cheesy yellow pulp, but they should be carefully distinguished from real cysts which occur only in other forms of testicular tumor.

The boundaries of the tumor are usually well-defined; isolated nodules are rare. Invasion of the adjacent lymph nodes was not clinically apparent in any of the author's cases.

Microscopically, these tumors are composed of characteristic epithelial cells with a supporting stroma. These neoplastic cells are large, from 18 to 24  $\mu$  in diameter, and round in shape, unless they are compressed, when they become polyhedral. The protoplasm is denser just about the nucleus and is separated from the cell membrane by a characteristic clear area. This space is occupied *in vivo* by glycogen and fat globules. The nucleus is large, egg shaped, vesicular, with a fine chromatic network, and contains from one to three nucleoli. Atypical mitotic figures are common.

The grouping of the cells varies. At times one meets with 50 to 100 closely packed polyhedral cells forming a veritable mosaic with very little intercellular binding substance and apparently supported only by their contiguous, sharply outlined, cell membranes. At other times one observes individual groups of 2-5 small round cells which assume a nest-like appearance; or else (especially at the periphery) single or double rows of cells may be seen.

Degenerations are of two types. In the first variety the necrotic process seems to be directly connected with the development of the cell and affects the fully developed elements which occupy the center of the neoplasm. Thus, while the periphery of the growth retains its normal structure, the center may contain a wide space filled with necrotic masses and cell detritus.

In the second type, the necrotic process is uniformly widespread and often involves both the neoplastic cells and the supporting stroma as well. Such degenerated areas are sharply delineated and resemble infarcts in their general arrangement; they ultimately become liquefied and form the cheesy masses already described. In the affected areas nuclei undergo pyknosis and karyorrhexis while the cell protoplasm may undergo granular, fatty, or colloid degeneration.

The connective tissue stroma varies in amount and causes a corresponding variation in the structure of the tumor. It is richer at the center of the growth than at the periphery. The normal connective tissue framework of the testicle is generally destroyed. In most cases the center of the growth is occupied by a fibrous network from which septa radiate enclosing alveoli of neoplastic cells. The connective tissue itself may be either of the old, avascular, well-organized variety or of the young, cellular, vascular, and actively growing type.

The degree to which the stroma becomes infiltrated with inflammatory products varies considerably. Occasionally it is so extensive that the entire nature of the tumor is obscured. Lymphocytes and plasma cells predominate. Among degenerations of the stroma were noted the

hyaline, myxomatous, and necrotic varieties. The hyaline type reaches the most widespread dimensions.

Blood vessels are not numerous. The larger ones follow the septa; the capillaries often push between individual tumor cells. Colloid material has been observed occluding the vessels, especially near necrotic areas.

The author has made special investigation as to the relation between the stroma cells and those of the growth proper. Although the latter are often packed closely against the connective tissue cells, especially where these form the septa, and although the tumor cells often fill the lymph space and thus further complicate the histological picture, it is generally a very simple matter to distinguish between the two types of cells. Confusion may arise, however, in those cases where the tumor is diffuse, where the stroma is composed of young connective tissue or where the inflammatory infiltration is very extensive.

Both epithelioid and giant cells occur, the latter being formed by a fusion of several cells of the former variety. The nuclei are oval, pale staining and (in the giant cells) may be either central or peripheric in their arrangement. The cytoplasm is homogeneous and stains intensely with eosin. The author feels that these giant cells have nothing in common with those described in chorio-epithelioma (syncetial cells), in tuberculosis, or as occurring in response to the presence of a foreign body. He inclines to the belief that these giant cells arise either from the connective tissue of the testicle proper or from the stroma cells of the tumor.

As regards the site of origin of these large-celled tumors, the author finds that the principal focus is always in the secreting part of the testicle and that the epididymis as well as the mediastinum testis are only secondarily involved. These tumors should be considered as both expansive and infiltrating in their mode of growth. As a result of compression by the tumor, the interstitial tissue of the testicle shows increased activity, the seminiferous tubules become compressed and distorted, spermatozoa cease to be formed, inflammatory infiltration occurs, and the whole organ undergoes the change which has been described as *fibrosus testis*. The atrophy of the seminiferous tubules is probably a direct result of compression and not an indirect effect of the interference with their blood supply, as has been suggested.

Although in some cases the tumor is surrounded by a (complete) connective tissue capsule, it is more commonly seen to send out little processes which occupy the intertubular spaces and by their growth cause the characteristic compression and ultimate destruction of the tubules. In three cases, however, intratubular invasion was observed; but wherever this takes place the two types of cells, neoplastic and epithelial, can be sharply distinguished, the one from the other. The

interstitial cells of the testicle, just like the parenchymatous, become surrounded by the neoplasm, undergo degeneration, and ultimately disappear as the new cells close in upon them. In this case, also, transition forms are never observed between the two varieties of cells.

In a case in which the tumor growth was both intra- and extratubular the author could establish the fact that intratubular portions of the new growth became extratubular and *vice versa*, but he could not decide where the growth actually started. The author, however, comes to the general conclusion that in fully developed large tumors the mode of invasion is along the intratubular connective tissue while in small young growths the infiltration may be intratubular as well.

Metastases occur through the lymph channels chiefly in the lumbo-aortic lymph glands. Recurrences have occurred a few months *post operationem* and were evidenced by obstinate pains in the loins and signs of cachexia. Soon afterward retroperitoneal masses could be made out on palpation.

Operative treatment consists in castration with high section of the spermatic cord. It has been suggested that a more radical operation with enucleation of the lumbo-aortic lymph glands would yield a better chance of recovery, but the author doubts the wisdom of such a plan not only because of the severity of the operation but also because of the likelihood that metastases may have occurred further along in the lymphatic system. (*To be continued.*)

## REVUE CLINIQUE D'UROLOGIE

September, 1912.

1. Urethroplasty by Means of Mucous Grafts. By T. Tanton. P. 455.
2. Injuries of the Vesical Mucosa from Attempts at Abortion. By E. Frank. P. 463.
3. Diversion of the Urine in Urethral Fistulae, in Plastic Operations on the Urethra, and in Phagedenic Ulcers of the Penis. By B. N. Cholzoff. P. 483.
4. A Case of Prostatic Calculus. By Dr. Cochez. P. 493.

### 1. Urethroplasty by Means of Mucous Grafts.

Tanton first takes up some previous suggestions for the radical repair of injuries to or deficiencies in the urethral canal. Schmieden has transplanted portions of the ureter (obtained from nephrectomy cases and from a recent autopsy) with fair success. Transplantation of veins has been tried but the canal thus formed does not allow of sufficient dilatation. As regards transplantation of the appendix (Jones Streissler) the author feels that it is unjustifiable when it requires a previous laparotomy on the same patient ("autoplasty"), and that it

can never be successful when a diseased appendix is employed which has been removed from another subject ("homoplasty").

Tanton therefore suggests transplantation of the vaginal mucosa as a solution of the difficulty. He obtained a very good result with this procedure in a case which he describes in full and which, one and a half years after operation, admitted a No. 55 (Charrière) sound with ease. Tanton recommends the following as the ideal procedure:

1. Preliminary diversion of the urine by a perineal urethrostomy.
2. Urethroplasty proper about two weeks later, which consists in the following steps: (a) Tunneling the inferior aspect of the penis (rather than an open incision) for an appropriate distance. (b) Removal of a piece of vaginal mucosa (e g. from a colpoperineorrhaphy case) of a length greater than that of the deficiency in the urethra and of a width such that when its two long sides are sutured together a tube will be formed which shall admit a No. 30 (Charrière) bougie with ease. (c) Introduction of the mucosal tube on the bougie into the tunnel which has been made to receive it, and suture of its posterior extremity, on its dorsal and lateral aspects only, to the anterior end of the true urethra. A large fistula is thus left on its inferior surface.
3. Gradual dilatation of the new canal.
4. Urethrorraphy 1-2 months later for closure of the fistula at the junction of the two canals.
5. Closure of the preliminary urethrostomy wound for perineal drainage.

## 2. Injuries of the Vesical Mucosa from Attempts at Abortion.

Frank points out the rarity of injuries to the vesical mucosa during attempts at abortion. He reviews the cases described in the literature and reports five original observations with figures showing the cystoscopic findings in each instance. Various instruments such as knitting needles and pointed pieces of wood were employed causing ulcerations and punctures in the vesical mucosa. The usual symptoms of severe cystitis were complained of: viz, pain in the bladder region, pain after urination, cloudy urine, hematuria, etc.

Although most of the patients were disposed to give misleading information concerning the part they played in bringing about their condition the cystoscopic picture was so characteristic that the examiner's suspicions were aroused and a full and correct history was obtained on direct questioning.

The lesions in these cases are situated either on the floor of the bladder, in the middle of the trigone, or occasionally at the bottom of the lateral walls. The ulcers are generally covered with pus and their edges bleed easily. The surrounding healthy mucosa is sharply demarkated from these areas but often shows numerous small pin-prick like lesions which are also of characteristic appearance.



## 3. Diversion of the Urine in Urethral Fistulae, etc.

Cholzoff, reviewing the literature and his own large experience with this method, arrives at the following conclusions:

1. For the success of plastic operations on the urethra where closure of the wound by primary union is essential, asepsis and rest of the parts are indispensable.

2. In order to secure rest for the urethral wound and to prevent its being infected by the urine, the permanent catheter is ordinarily employed.

3. The permanent catheter, however, does not fulfil this end. Not only the trickling of some of the urine *alongside* the catheter but its very presence in the canal and the consequent irritation of the urethral mucosa are factors which directly favor infection of the wound. For this reason the use of the permanent catheter should be given up.

4. Since diversion of the urinary current is a *sine quo non* for the success of plastic operations on the urethra it should be carried out by making a temporary fistula either in the urethra or in the bladder. Such a procedure prevents all contact of urine with the operative wound.

5. The exact route for the deviation of the current, whether urethral or vesical, depends on the case to be treated.

6. In long-standing, purulent, or multiple fistulae, diversion of the urine by means of a suprapubic fistula seems to be the best *therapeutic* measure.

7. In gangrenous or phagadenic ulcers of the penis deviation of the urine by means of a perineal fistula seems to be a very valuable aid to the ordinary methods of treatment.

## 4. A Case of Prostatic Calculus.

The calculus described by Cochez weighed 36 grams and was 66 by 28 mm. in size. It occupied an enormously dilated prostatic urethra and presented a prolongation which extended into the bladder. The prostatic tissue proper was almost entirely absent.

The patient's history was that of progressively increasing difficulty of urination. Rectal examination immediately revealed the presence and nature of the obstruction while the X-ray examination indicated the adoption of a perineal route of approach.

The calculus was easily removed and the patient's symptoms were almost entirely relieved at the time of writing. Infection of the wound took place, but healing was rapid after the introduction of a permanent catheter. The stone, according to the author, probably came from the kidney although the patient gave no history whatever of renal colic.

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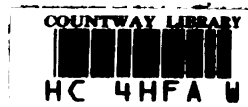
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